

**ENGINEERING EXHIBIT**

**KFSN TELEVISION, LLC.  
TELEVISION STATION KFSN, FACILITY ID 8620  
APPLICATION FOR POST-TRANSITION DTV CONSTRUCTION PERMIT  
CHANNEL 30 260 KW DA MAX(DTV AVERAGE) 625 METERS HAAT**

**FRESNO, CALIFORNIA**

**TABLE OF CONTENTS**

**Engineering Statement**

<b>Exhibit 1</b>	<b>Distances to DTV Noise-Limited Contours Appendix B and Proposed NTSC Antenna Distance to 41 dBu in 10 Degree Increments</b>
<b>Exhibit 2</b>	<b>Map Showing Principal Community Coverage 48 dBu F(50:90) Contour and 41 dBu F(50:90) Noise Limited Contour</b>
<b>Exhibit 3</b>	<b>Antenna Pattern Data Azimuth Pattern Plot on Sheet 1 Elevation Pattern Plot on Sheet 3 Tabulations on Sheets 2 and 4</b>
<b>Exhibit 4</b>	<b>Interference Study Results in TV_Process Output Format</b>

## **ENGINEERING EXHIBIT**

**KFSN TELEVISION, LLC.  
TELEVISION STATION KFSN, FACILITY ID 8620  
APPLICATION FOR DTV POST-TRANSITION CONSTRUCTION PERMIT  
CHANNEL 30 260 KW (DTV AVERAGE) 625 METERS HAAT**

**FRESNO, CALIFORNIA**

### **ENGINEERING STATEMENT**

#### **Introduction**

KFSN Television, LLC. (KFSN) is the licensee of KFSN, Fresno, California. KFSN is licensed to operate NTSC analog facilities on channel 30 with an effective radiated power of 3720 KW at a height above average terrain of 622 meters. FCC File Number BLCT-19800424KG describes the KFSN analog channel 30 facilities. This license describes the facilities that were used as the basis for DTV replication facilities.

KFSN began broadcasting in May of 1956 and has been serving Fresno and nearby communities continuously since that time.

In the Seventh Report and Order, KFSN was assigned a Post-Transition DTV Allotment on Channel 30 of 182 KW at 614 meters HAAT with a directional antenna which bears Antenna ID 74349. This HAAT is identical to the presently licensed HAAT of the channel 9 DTV antenna.

KFSN-DT operates on its initial allotment channel 9 with an antenna pattern that differs from the initial allotment replication pattern. The channel 9 DTV licensed pattern provides a stronger signal over the city of license than would be provided by the replication antenna pattern that was associated with the channel 9 initial allotment in 1998. The DTV facilities that KFSN operates are described in the FCC License File Number BLCDDT-20010531ACX, which covered construction permit BPCDDT-19991101ABT.

The directional pattern associated with the KFSN-DT post-transition channel 30 DTV facilities in Appendix B of the Seventh Report and Order is derived from the KFSN-DT 1998 licensed pattern, which is originally designed for operation on channel 9. This VHF pattern was then converted for post-transition UHF DTV operation on channel 30. This channel 30 pattern is found in Appendix B and bears FCC Antenna ID Number 74349.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 2 of 15**

The original channel 9 pattern is not based on measured data, but is a typical calculated pattern with little detail in the null directions. Until DTV there was no need to be concerned with null structure or signal level below maximum main lobe by 15 dB or more as Section 73.685(e) expressly disallowed consideration of a minimum signal less than 15 dB below maximum (10 dB at VHF) and protection from interference was provided by spacing only.

Through this application, KFSN seeks to obtain a Construction Permit to operate post transition DTV facilities on channel 30. The presently licensed NTSC antenna is a Harris TAZ-31U channel 30 antenna. The presently licensed NTSC channel 30 antenna will be replaced before the transition with an ERI channel 30 directional antenna. The proposed antenna is an ERI CH30-HAZ-CX with 1.39 degrees of electrical beam tilt. The calculated azimuth pattern and the elevation pattern are plotted and tabulated in a figure that is labeled Exhibit 3.

KFSN respectfully requests a waiver of the requirements of the present TV Freeze in accordance with the criteria outlined on the Filing Freeze Waiver Policy in Paragraph 151 of the Report and Order in the Third Periodic Review. The facilities described in this application for Construction Permit meet each of the criteria that are contained in Paragraph 151 of the Report and Order in the Third Periodic Review, and will prevent the loss of service which would occur if KFSN-DT were forced to use the antenna pattern shown in Appendix B which bears Antenna ID Number 74349. Without exceptional measures, the null structure that is described in the Appendix B pattern 74349 is extremely difficult to obtain and also difficult to verify by measurement. The Appendix B pattern is easily replicated in the main lobe directions, but the null structure reaches minima that are difficult to design, particularly since the post-transition Appendix B pattern is based on the presently licensed VHF DTV antenna. The Appendix B post-transition pattern is the result of use of a VHF antenna pattern that was calculated for catalog purposes with little or no consideration of the pattern in the directions where the minima are found. The presently licensed VHF DTV Antenna pattern was never measured. This same pattern was used later as the basis for a replication pattern at UHF.

Processing under the Paragraph 151 criteria will enable KFSN-DT to use the proposed ERI directional antenna and maintain service to those viewers who receive KFSN off-the-air presently and have an expectation of being able to receive KFSN-DT off-the-air in the post-transition era.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 3 of 15**

**Licensed Facility**

The KFSN NTSC Main License bears FCC File Number BLCT-19800424KG and specifies an ERP of 3720 KW at 622 meters HAAT. This facility meets the ERP and HAAT requirements for an NTSC television station in television Zone II.

Through this application KFSN-DT seeks a construction permit for Post-Transition DTV operation to return to its NTSC channel to operate post-transition facilities on channel 30 with the proposed ERI directional antenna at an HAAT of 625 meters with an ERP of 260 KW. This ERP satisfies the requirements of Section 73.622(f)(8)(ii) which defines the ERP and HAAT for a UHF DTV facility in Television Zone II with an HAAT of 610 meters or more.

The presently licensed channel 30 NTSC antenna is supported by a tower which bears Antenna Structure Registration Number 1019441. The presently licensed Harris TAZ-31U channel 30 antenna will be replaced by the proposed ERI channel 30 antenna as described in the figure that is labeled Exhibit 3. Both antennas are directional, but the patterns differ. The presently licensed Harris antenna bears FCC Antenna ID 19308. An application for construction permit has been filed in order that the presently licensed channel 30 Harris NTSC antenna can be replaced before the transition to digital television occurs.

The HAAT of the proposed antenna is calculated through use of the FCC 30 second NGDC Terrain data and a 360 radial average with an RCAMSL of 1458 meters and an RCAGL of 72.7 meters. When the standard 8 radial method and the proposed RCAMSL is used to calculate the HAAT from a 30 second NGDC database, an HAAT that is higher than the result of a manual calculation from years ago will be obtained. An HAAT that differs less than the manual results is obtained when the use of 360 radials are used for the HAAT calculation. The result when calculating HAAT with 360 radials is 625 meters for the proposed ERI channel 30 antenna with an RCAMSL of 1458 meters. Because of the very diverse and rugged terrain near the KFSN site, it is believed that the HAAT obtained through a calculation with 360 radials is a more accurate representation of the HAAT at the KFSN site and because of this, it is respectfully requested that the Commission use a 360 radial calculation of HAAT when computing the HAAT for the proposed ERI channel 30 antenna.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 4 of 15**

**The KFSN Main License Expiration Date**

The KFSN Main License bears an expiration date of December 1, 2006. A timely application for renewal of the KFSN licenses was filed with the Commission and bears FCC File number BRCT-20060810ANJ and was accepted for filing on August 18, 2006. The instant application is acceptable for filing pending a final determination by the Commission on the outstanding application for renewal of the KFSN main license.

**Interference Calculation Methodology**

The results of interference calculations that are contained in this engineering statement were obtained by Longley-Rice methods that are described in OET Bulletin 69, July 1997, as implemented in the Commission's software TV\_Process with 2 KM cell size. The post-transition data that were used for these calculations were obtained from the post-transition database that was bundled with Check\_AppB Fortran source code and released by the FCC on Tuesday, February 26, 2008. The population census data were obtained from the Year 2000 Census. This methodology and the associated Longley-Rice parameters and cell size are described in the Report and Order in the Third Periodic Review at Paragraph 155.

**Protection to Post-Transition DTV Authorized Facilities and Allotments**

Television channel 30 was tentatively designated for post-transition operation by KFSN-DT during the channel election process. Channel 30 is shown in the DTV Table of Allotments of Section 73.622 of the Rules, and in Appendix B for use by KFSN-DT, Facility ID number 8620. The facilities associated with this allotment are also shown in Appendix B of the Seventh Report and Order, which was released August 6, 2007. The interference studies conducted and the results of those calculations that are shown in this statement are based on the facilities contained in Appendix B, and the post-transition database that is described above.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 5 of 15**

The designated facilities described in Appendix B that are associated with post-transition operation of KFSN-DT contain a directional antenna pattern and an ERP of 182 KW DA maximum. The directional pattern, Antenna ID 74349 that is referenced in Appendix B is a product of determining the azimuth relative field pattern of the licensed VHF DTV antenna, which bears FCC Antenna ID 37354, in the horizontal direction, then modifying this pattern for appropriate channel 30 UHF characteristics, such as the Commission's UHF vertical pattern, and then adjusting the pattern at horizontal to accommodate the differences in UHF and VHF vertical patterns as well as the differences in the UHF and VHF F(50:90) curves. The result is the pattern that is found in Appendix B, which bears Antenna ID number 74349.

A study was conducted to determine what effective radiated power would satisfy the requirements outlined in Paragraph 151 of the Report and Order in the Third Periodic Review. This Filing Freeze Waiver Policy contains three basic requirements which:

1. Would allow the station to use its analog antenna or another antenna to avoid a significant reduction in post-transition service;
2. Would be no more than 5 miles larger in any direction than the authorized service area as defined in Appendix B; and
3. Would not cause impermissible interference, i.e., would not cause more than 0.5 percent new interference to other stations.

The study results as obtained through use of the Commission's TV Process software indicate that 260 KW ERP DA Max and the proposed ERI channel 30 antenna that is described in Exhibit 3 will satisfy each of the criteria contained in Paragraph 151.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 6 of 15**

Operation with the antenna that is described in Appendix B with an ERP of 182 KW DA-Max and the 74349 antenna pattern, if such a pattern could be built, provides coverage to 1,437,000 persons, according to the results that are shown in Appendix B.

If KFSN-DT were restricted to the use of the proposed ERI antenna and required to maintain the predicted coverage contour generated by the proposed ERI antenna within the predicted coverage that is defined by the facilities described in Appendix B (FCC 08-72) without exceeding the Noise Limited Contour that is predicted by the KFSN-DT Appendix B facility, the maximum DA ERP would be limited to about 28 KW DA Max. The coverage obtained from these operating parameters is 1,282,938 persons. The difference between the Appendix B facility and the smaller 28 KW DA Max facility would cause a loss of post-transition DTV coverage to 154,062 persons.

Operation with 260 KW ERP DA Max and the proposed ERI channel 30 antenna is predicted to provide service to 1,454,639 persons after consideration of losses to terrain and interference from post-transition DTV facilities as found in Appendix B, according to results from TV\_Process calculations. The results of these calculations are contained in the attached figure which is labeled Exhibit 4.

These calculations made using the proposed channel 30 ERI antenna generate a list of two affected stations on channel 30. The use of the proposed ERI antenna and 260 KW ERP DA-Max shows no new interference in excess of 0.5 percent is created to any affected station. This satisfies the first of the three criteria in Paragraph 151.

Distances to predicted 41 dBu F(50:90) noise limited contours for the proposed 260 KW ERI directional antenna operation and the directional antenna that is described in Appendix B are shown in Exhibit 1. The greatest excursion of the predicted noise-limited contour for the proposed 260 KW DA Max ERP when used with the proposed ERI channel 30 antenna is 4.98 miles in the direction of 350 degrees true. The second greatest excursion occurs at azimuth angles of 40 through 90 degrees and is 4.97 miles. The distances to contours in Exhibit 1 are shown in kilometers: 4.98 miles is equal to 8.01 kilometers and 4.97 miles is 8.005 kilometers. These differences between the KFSN Appendix B facility and the facility proposed are the largest to be found upon review of the distances

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 7 of 15**

contained in Exhibit 1. The Exhibit contains the results of distance calculations in kilometers as produced by FCC Curves. A distance of 5 miles is slightly greater than 8.04 kilometers. This satisfies the second of the three criteria in Paragraph 151.

The third criterion in Paragraph 151 is satisfied in that KFSN will be returning to channel 30, its NTSC channel for post-transition operation from DTV operation on channel 9, and the proposed use of the proposed ERI directional antenna will satisfy each of the criteria contained in Paragraph 151.

**Interference Calculations**

The TV\_Process calculations of new interference to other stations caused by the use of 260 KW ERP with the proposed ERI antenna that is described in Exhibit 3 in place of the Appendix B facilities for KFSN identified two affected stations and show the following results:

KQED-DT,30, San Francisco, CA	0.3777% Additional Interference
KSMS-TV, 31, Monterey, CA	Proposed Station is beyond the site to nearest cell evaluation distance

The only numerical results were reported in the interference calculations to KQED-DT, San Francisco, CA. The additional interference calculation results show 0.3777 percent new interference to the KQED-DT channel 30 Appendix B facility, which complies with the interference criteria that are outlined in Paragraph 151 of the Report and Order in the Third Periodic Review.

### **Protection to Class A Stations**

Section 73.613 describes requirements to protect Class A stations. The protection afforded is by predicted contour methods for stations that operate on co-channels. The Rules also permit an OET-69 study to consider the effects of intervening terrain and show protection from interference due to terrain blockage.

Only one station, co-channel KDFS-CA, Santa Maria, California, was studied because of its proximity and because it operates on channel 30, which is co-channel with KFSN.

When KDFS-CA was constructed, advantage was taken of the intervening terrain between KDFS and KFSN. This terrain adds excess attenuation that is greater than 60 dB for the path between the stations.

The input data record for KDFS-CA was added to the TV\_Process input data post transition database and the resulting augmented database was used to evaluate potential interference to KDFS-CA. The TV\_Process results showed an evaluation to Class A stations and found no contour overlap or spacing violation toward any Class A station. This result is found in Exhibit 4, page 1, and the results of the study state that the instant proposal causes no interference.

### **Protection to Nearby AM Stations**

There is no AM station within 3.2 kilometers of the KFSN site.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 9 of 15**

### **Protection to FCC Monitoring Stations and Radio Astronomy Installations**

Section 73.1030 defines criteria by which FCC Monitoring Stations and other protected receiving facilities are protected from changes to their radio receiving environment.

The nearest FCC Monitoring Station is located in Livermore, California. It is located more than 217 KM from the KFSN transmission system. The greatest study distance for transmission systems that operate in the 566 to 572 MHz range is 80 kilometers, per Section 73.1030(c)(3), and the distance to the monitoring station alone satisfies the requirements of Section 73.1030 to protect FCC Monitoring Stations.

The nearest protected receiving location is Table Mountain, Colorado. The great distance to the protected receiving location is sufficient to satisfy the requirement to protect this facility. This agrees with TV Process results which report the instant proposal needs no further consideration of protection to the Table Mountain receiving location.

### **Principal Community Coverage**

Exhibit 3 is a map which depicts the 48 dBu F(50:90) contour and demonstrates that the entire city of Fresno, California is contained within this contour. This map also depicts the 41 dBu noise limited coverage contour. Exhibit 3 clearly demonstrates compliance with the requirement to cover the city of license with a 48 dBu F(50:90) contour as outlined in Section 73.625(a)(1) of the Commission's Rules.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 10 of 15**

**Compliance with Environmental Requirements**

**Introduction**

The KFSN Transmitter facility is located at 41986 Ringtail Lane, Meadow Lakes, California. The entrance to the facility is protected by a locked gate, and the Transmitter Building and the nearby towers which support the main television antenna and the main DTV antenna are surrounded by a chain-link fence. Signs are posted on this perimeter fence to warn persons to keep out of the fenced area. The signs caution persons approaching the fence that elevated levels of radiofrequency energy are present beyond the fence, and that trespassing is prohibited.

KFSN (TV) operates on channel 30 in accordance with its license which bears FCC File Number BLCT-19800424KG. KFSN-DT operates on channel 9 in accordance with the terms of its license which bears FCC File Number BLCDT-20010531ACX. KFSN will operate its post transition facilities on channel 30, terminate the DTV operation on channel 9 and terminate the higher power NTSC operation on channel 30 at the end of the DTV transition. The net effect of this termination of NTSC operations will reduce the human exposure to radiofrequency energy at this location.

KFRE (TV) and KFRE-DT operate from this site as well. KFRE operates on channel 59 under the terms of its license which bears FCC File Number BLCT-20040825ABX. KFRE-DT was operating under the terms of a Special Temporary Authority, FCC File Number BDSTA-20020917ABQ, on channel 36 when the measurements that are cited in this report were made. KFRE-DT completed construction of the facilities authorized in the modified construction permit, BMPCDT- 20060327ABS, and the facility is now licensed and is described in FCC File Number BLCDT-20060421AAI. The contribution from KFRE-DT to the exposure at ground level and in the vicinity of the KFSN transmitter was calculated and added to the very final results that are contained in this report.

KFRE-DT operates with a directional antenna and 360 KW maximum effective radiated power. Where the vertical pattern relative field is equal to or less than 0.08, then the field on the ground will be approximately 12% or less of the limit

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 11 of 15**

for uncontrolled areas at any angle below horizontal. This is true for most of the arc that is well below the horizon. Calculations that are based on the vertical antenna pattern that was filed with the KFRE-DT modification of construction permit indicate this will be true for all angles below horizontal with the exception of angles around 65 degrees. With a center of radiation at 40.8 meters AGL, this distance will be less than 20 meters from the centerline of the antenna. In all other cases, the calculations per OET Bulletin 65 (Edition 97-01) indicate that the expected field is between 2.34% and 15.62% of the limit for uncontrolled areas. The limit for channel 36, 602-608 MHz is 0.4013 milliwatts per square centimeter in uncontrolled areas, as defined in Section 1.1310 of the Commission's Rules. This calculation applies to azimuth angles between 190 to 260 degrees true, and was performed for the worst case direction of 225 degrees. At all other azimuth angles, the relative field is less and the resulting fields at ground level will be smaller.

A nearby FM station, KSKS, operates on 93.7 MHz under terms of its license which bears FCC File Number BMLH-20050425ABM.

There are other contributors nearby but distant enough to be very small contributors to the measured electromagnetic fields at the KFSN site. The four television stations and the single FM station are the major source of radiofrequency fields at the KFSN Transmitter site.

In October of 2005, KFSN authorized this office to perform a field survey and analysis of radiofrequency field levels at the KFSN Transmitter location. The results of this survey indicate that the power density levels anywhere on the ground or as much as two meters above the ground as measured in the October 2005 Survey meet the Commission's requirements for uncontrolled areas.

If the effect of the new ERP of KFRE-DT is added to the measured fields at the KFSN transmitter site, the resulting exposure is still well within the limits of Section 1.1310 for Uncontrolled Areas.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 12 of 15**

**Instrumentation**

The measurements described in this Statement were made with a broadband, isotropic, electric field probe, NARDA Microwave Model B8742D, serial number 01030, and a NARDA Microwave Model 8718 digital meter, serial number 1008. The B8742D probe has a shaped frequency response that provides an output, when read on the associated meter, of the measured radiofrequency field as a percentage of the FCC's maximum permissible exposure limit for controlled or occupational environments.

Efforts were made to optimize the measurement process to achieve an accurate estimate of the unperturbed RF fields, expressed as a percentage of the limit for occupational or controlled areas. The limits for maximum permissible exposure are taken from the Commission's Rules, Section 1.1310. For the frequencies under study, the ratio between the occupational limits and the limits for uncontrolled areas or the general public is a fixed factor of five.

**RF Survey Measurements**

The KFSN transmitter was visited in the late afternoon of October 26, 2005, and the early morning hours of October 27, 2005. In the afternoon, both KFSN and KFSN-DT were operating, as well as KFRE, channel 59, and KFRE-DT was operating under its STA, BDSTA-20020917ABQ. KSKS was operating as well, but no verification of its operating parameters was made in the late afternoon.

Measurement of RF fields inside the transmitter building were made, with measurements taken in the main operating room, the room that houses the KFSN beam supplies, and the KFRE beam supply area which is under roof, but outside the transmitter building walls. In each of these areas the spatial maxima were well below the Commission's limits for uncontrolled areas.

In the main transmitter building room, the maximum peak measurement indicated 6.0% of the limit for uncontrolled areas. In the beam supply room of the KFSN transmitter, a maximum value of 10.5% of the limit for uncontrolled areas was found. This room contains RF components and transmission lines. The area near the transmission lines was measured to be certain that any existing difficulties with waveguide or transmission line flanges would be found.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 13 of 15**

In the areas where the KFRE beam supplies were found, the maximum value of 24.5% of the uncontrolled standard was found between the channel 59 beam supply and cooling pump.

Comprehensive measurements were made in the areas between the transmitter building and the enclosure fence. The vast majority of these measurements ranged between 12.0% and 13.0% of the limit for uncontrolled areas. The absolute maximum reading obtained was 58% of the standard for uncontrolled areas. This maximum was found behind the transmitter building, near the RF exposure warning sign, inside the perimeter fence. A smaller relative maximum was found near this location on the outside of the perimeter fence.

Relative maxima of 29.5% and 32% were found within a short distance of each other near the lowest portion of the C band satellite receiving antenna, which is also located behind the transmitter building.

Measurements were also made with each of the identified stations operating alone to determine individual contributions to the fields on the KFSN site. The results of these individual station measurements were as expected, and verified that each station contributed a quantifiable amount of energy exposure to the site, but no station contributed an extremely large field. The detailed results of the individual station measurements were filed with the KFSN application for renewal of license in August, 2006.

With all contributors operating as authorized, measurements made in October, 2005 indicate that the maximum power density from ground level to two meters above ground level does not exceed 58 percent of the limit for the general population in any uncontrolled Areas. As a result, the ground level area of the KFSN Transmitter Site, both inside and outside of the perimeter fence, as well as inside and outside of the transmitter building, meets the requirements for an Uncontrolled Area. Survey measurements made in October of 2005 in and around the KFSN Transmitter Building (which also includes the KFRE and KFRE-DT transmitters) indicate that the levels which meet the requirements for Uncontrolled Areas are not exceeded in the Transmitter Building, confirming that RF energy is being properly confined by coaxial transmission lines, transmitter cabinetry and RF components.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 14 of 15**

**Results of Measurements**

A careful ground survey of RF fields at the KFSN transmitter site showed that the fields in uncontrolled areas, those points outside of the locked, physically controlled area inside the perimeter fence were compliant with the FCC Maximum Permissible Exposure Limits for the general public, generally by a wide margin. The largest field found at the site was found within the perimeter fence and was 58% of the uncontrolled standard. Other elevated levels were found but only one reached 32% outside the perimeter fence, and a second was recorded at 29.5% of the limit for uncontrolled areas. If one adds the calculated maximum exposure level from KFRE-DT of 12 percent, no area will exceed 70 percent of the limit found in Section 1.1310 of the Commission's Rules anywhere at ground level to two meters above ground level within the KFSN perimeter fence and no level will exceed 44 percent anywhere at ground level to two meters above ground level outside the KFSN perimeter fence.

Within the KFSN transmitter building, the largest field observed was 10.5% of the uncontrolled standard, and this value was found in the KFSN beam supply room. In the main transmitter room the largest value of field that was observed was recorded at 6.0% of the uncontrolled standard.

For administrative purposes both towers at the KFSN transmitter site are treated as controlled areas.

For administrative and safety purposes, both towers at the KFSN transmitter site are treated as a Controlled Area where only those who have been properly instructed with regard to RF Safety are allowed. The towers themselves are the only controlled areas at this location.

This statement is not meant to be applied to those climbing towers or persons working aloft. With KFSN, KFSN-DT, KFRE, KFRE-DT, or KSKS (FM) operating, workers or others should not climb the tower until calculations and/or measurements can be made to determine where the RF exposure limits for controlled environments are not exceeded. As persons approach antenna apertures, whether on the tower being climbed or an adjacent tower with energized transmitting antennas, fields increase rapidly. This is reason to require each tower to be treated administratively as a controlled area.

**Engineering Statement  
Post-Transition CP Application  
KFSN Television, LLC.  
Fresno, California  
May 2008, Page 15 of 15**

The KFSN facilities as presently authorized and operating, meet the Commission's requirements as described in Section 1.1310, and Section 1.1307(b) of the Rules. The proposed post-transition DTV facilities will meet the requirements of the Rules, as the NTSC sources that are included in this evaluation of radiofrequency fields will cease operation upon the transition to DTV only operation.

**Conclusion**

The proposed post-transition DTV operation of KFSN on its presently licensed NTSC channel complies with all Commission Rules. The proposed post-transition operation of KFSN-DT will comply with the Commission's Rules regarding interference limits as described in Section 73.616. The proposed operation of KFSN on channel 30 as described herein will also comply with the Commission's Rules regarding human exposure to radiofrequency energy as NTSC sources will no longer operate after the DTV transition date.

**Certification**

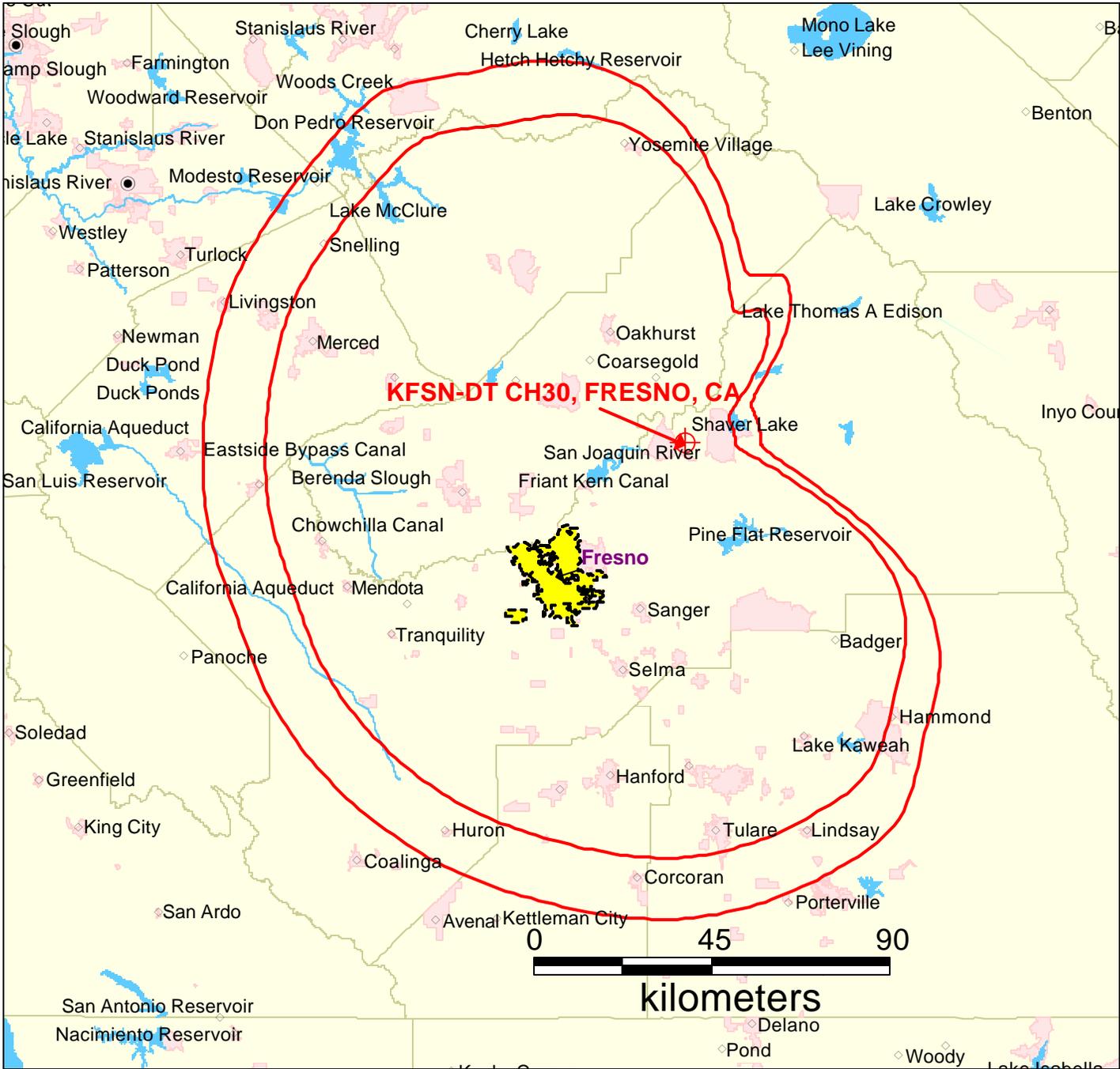
I certify that, on behalf of the KFSN Television, LLC, licensee of KFSN and KFSN-DT, the information in this statement was prepared by me or under my supervision with the assistance of Zar B. Aung, EIT. On behalf of the KFSN Television, LLC, I have prepared and reviewed the information that is contained in this Statement, and that after such review and examination have found it to be accurate and true to the best of my knowledge and belief.



Signed: \_\_\_\_\_  
Alfred E. Resnick, P. E.

Dated: May 7, 2008

	<b>KFSN, FRESNO, CA (DTV - Appendix B Facility) Latitude: 37 04 37 Longitude: 119 26 01 CH. 30, 181.71 kW, 614 mHAAT, 1439 mRCAMSL, 74349 D-ANT PREDICTED 41 dBu, F(50,90) NOISE LIMITED CONTOUR</b>	<b>KFSN, FRESNO, CA (DTV - Proposed Post Transition) Latitude: 37 04 38 Longitude: 119 26 00 CH. 30, 260 kW, 625 mHAAT, 1458 mRCAMSL, ATW28HS6-HTCX-30H D-ANT PREDICTED 41 dBu, F(50,90) NOISE LIMITED CONTOUR</b>
Radial	Distance (km)	Distance (km)
0	70.86	78.86
10	52.14	60.137
20	36.95	44.953
30	40.82	48.819
40	31.92	39.926
50	16.91	24.918
60	10.92	18.926
70	10.92	18.926
80	10.92	18.926
90	10.92	18.926
100	16.15	24.141
110	31.76	39.758
120	58.36	66.367
130	75.42	83.417
140	86.53	93.61
150	102.53	107.74
160	108.26	112.41
170	111.56	115.92
180	114.22	118.41
190	115.32	119.05
200	116.26	119.82
210	114.37	121.29
220	114.01	122.00
230	117.76	122.18
240	118.07	121.35
250	113.89	119.55
260	112.92	120.28
270	113.99	119.76
280	114.74	119.15
290	114.02	118.79
300	111.39	116.89
310	110.61	115.77
320	110.76	115.26
330	102.79	107.04
340	95.56	101.98
350	82.70	90.711



**PREDICTED COVERAGE CONTOURS**  
KFSN-DT Ch 30, Fresno, CA  
260 kW, 625 mHAAT  
1458 mRCAMSL, ATW28HS6-HTCX-30H D-ANT

Predicted Noise Limited Coverage Contour  
F(50,90), 41 dBu

Predicted Principal Community Coverage Contour  
F(50,90), 48 dBu

APRIL 2008

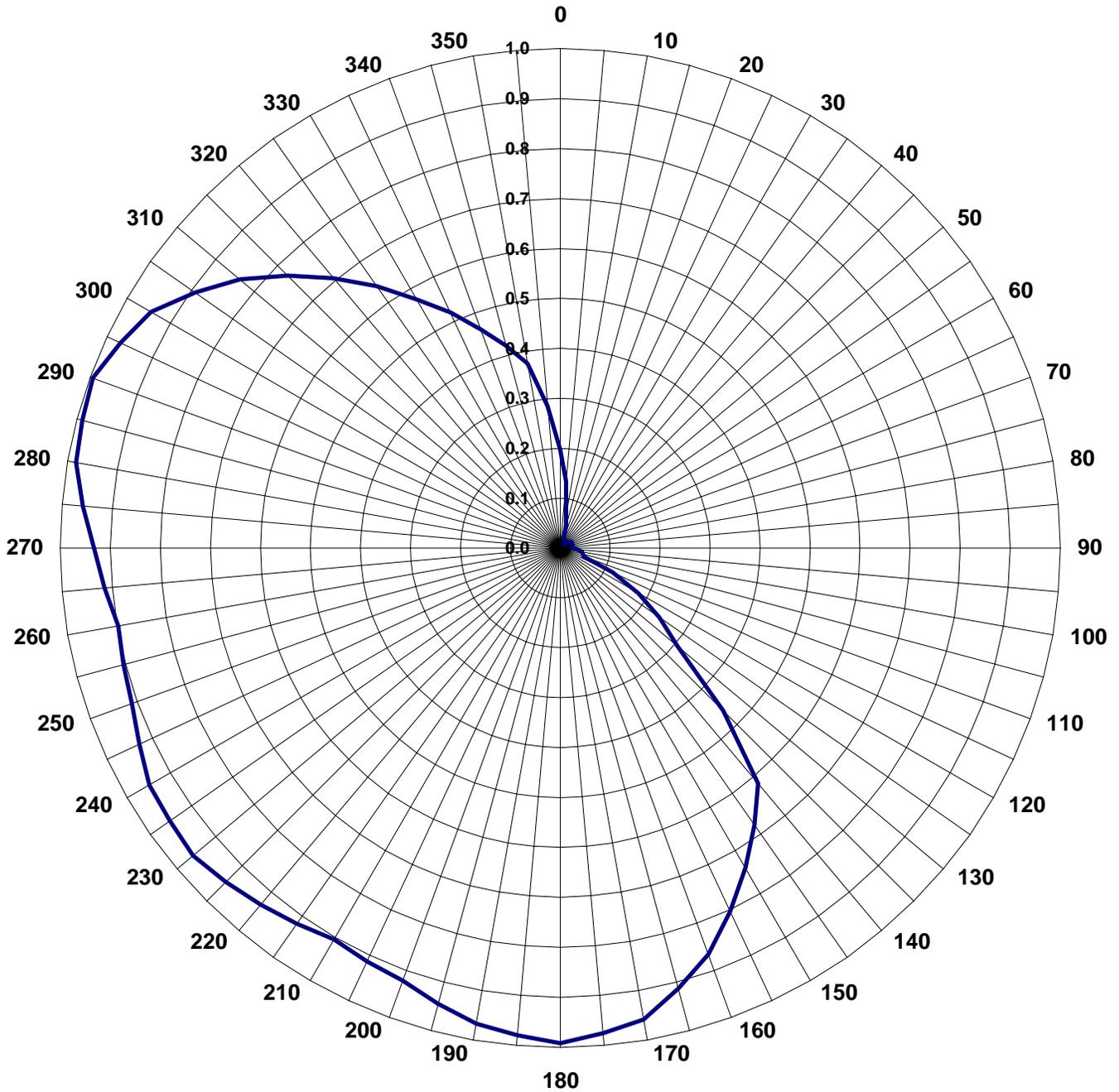


### AZIMUTH PATTERN

**TYPE:** ch30haz-cx (Calculated)  
**Directivity:** Numeric dB  
                   2.21       3.44  
**Peak(s) at:** \_\_\_\_\_  
                   \_\_\_\_\_

**Frequency:** 30 (DTV)  
**Location:** Fresno, CA  
**Polarization:** Horizontal

Note: Pattern shape and directivity may vary with channel and mounting configuration.



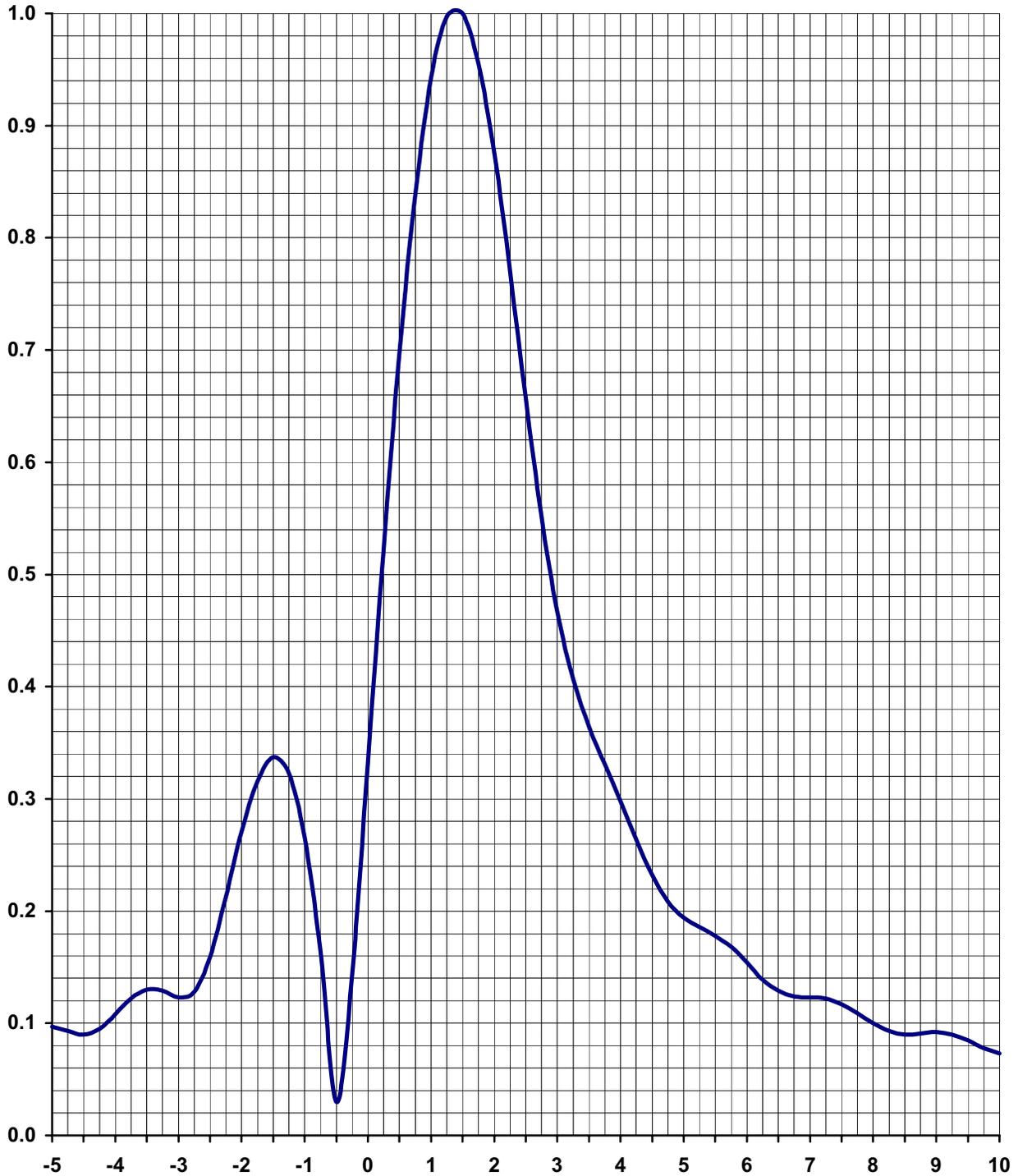
## TABULATED DATA FOR AZIMUTH PATTERN

TYPE: ch30haz-cx (Calculated)

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.196	-14.15	92	0.029	-30.75	184	0.982	-0.16	276	0.963	-0.33
2	0.171	-15.34	94	0.033	-29.63	186	0.977	-0.20	278	0.973	-0.24
4	0.145	-16.77	96	0.036	-28.87	188	0.972	-0.25	280	0.983	-0.15
6	0.120	-18.42	98	0.040	-27.96	190	0.967	-0.29	282	0.985	-0.13
8	0.094	-20.54	100	0.044	-27.13	192	0.958	-0.37	284	0.988	-0.10
10	0.069	-23.22	102	0.045	-26.94	194	0.949	-0.45	286	0.990	-0.09
12	0.059	-24.58	104	0.046	-26.74	196	0.940	-0.54	288	0.993	-0.06
14	0.049	-26.20	106	0.048	-26.38	198	0.931	-0.62	290	0.995	-0.04
16	0.039	-28.18	108	0.049	-26.20	200	0.922	-0.71	292	0.985	-0.13
18	0.029	-30.75	110	0.050	-26.02	202	0.919	-0.73	294	0.975	-0.22
20	0.019	-34.42	112	0.076	-22.38	204	0.915	-0.77	296	0.965	-0.31
22	0.019	-34.42	114	0.102	-19.83	206	0.912	-0.80	298	0.955	-0.40
24	0.018	-34.89	116	0.128	-17.86	208	0.908	-0.84	300	0.945	-0.49
26	0.018	-34.89	118	0.154	-16.25	210	0.905	-0.87	302	0.923	-0.70
28	0.017	-35.39	120	0.180	-14.89	212	0.910	-0.82	304	0.902	-0.90
30	0.017	-35.39	122	0.205	-13.76	214	0.916	-0.76	306	0.880	-1.11
32	0.017	-35.39	124	0.230	-12.77	216	0.921	-0.71	308	0.859	-1.32
34	0.017	-35.39	126	0.256	-11.84	218	0.927	-0.66	310	0.837	-1.55
36	0.018	-34.89	128	0.281	-11.03	220	0.932	-0.61	312	0.811	-1.82
38	0.018	-34.89	130	0.306	-10.29	222	0.937	-0.57	314	0.785	-2.10
40	0.018	-34.89	132	0.368	-8.68	224	0.942	-0.52	316	0.758	-2.41
42	0.016	-35.92	134	0.430	-7.33	226	0.948	-0.46	318	0.732	-2.71
44	0.014	-37.08	136	0.492	-6.16	228	0.953	-0.42	320	0.706	-3.02
46	0.013	-37.72	138	0.554	-5.13	230	0.958	-0.37	322	0.680	-3.35
48	0.011	-39.17	140	0.616	-4.21	232	0.956	-0.39	324	0.654	-3.69
50	0.009	-40.92	142	0.641	-3.86	234	0.954	-0.41	326	0.627	-4.05
52	0.012	-38.42	144	0.665	-3.54	236	0.952	-0.43	328	0.601	-4.42
54	0.015	-36.48	146	0.690	-3.22	238	0.950	-0.45	330	0.575	-4.81
56	0.019	-34.42	148	0.714	-2.93	240	0.948	-0.46	332	0.553	-5.15
58	0.022	-33.15	150	0.739	-2.63	242	0.941	-0.53	334	0.531	-5.50
60	0.025	-32.04	152	0.764	-2.34	244	0.933	-0.60	336	0.510	-5.85
62	0.025	-32.04	154	0.790	-2.05	246	0.926	-0.67	338	0.488	-6.23
64	0.025	-32.04	156	0.815	-1.78	248	0.918	-0.74	340	0.466	-6.63
66	0.025	-32.04	158	0.841	-1.50	250	0.911	-0.81	342	0.436	-7.21
68	0.025	-32.04	160	0.866	-1.25	252	0.908	-0.84	344	0.405	-7.85
70	0.025	-32.04	162	0.885	-1.06	254	0.906	-0.86	346	0.375	-8.52
72	0.025	-32.04	164	0.903	-0.89	256	0.903	-0.89	348	0.344	-9.27
74	0.025	-32.04	166	0.922	-0.71	258	0.901	-0.91	350	0.314	-10.06
76	0.025	-32.04	168	0.940	-0.54	260	0.898	-0.93	352	0.290	-10.75
78	0.025	-32.04	170	0.959	-0.36	262	0.905	-0.87	354	0.267	-11.47
80	0.025	-32.04	172	0.966	-0.30	264	0.912	-0.80	356	0.243	-12.29
82	0.025	-32.04	174	0.972	-0.25	266	0.918	-0.74	358	0.220	-13.15
84	0.025	-32.04	176	0.979	-0.18	268	0.925	-0.68	360	0.196	-14.15
86	0.025	-32.04	178	0.985	-0.13	270	0.932	-0.61			
88	0.025	-32.04	180	0.992	-0.07	272	0.942	-0.52			
90	0.025	-32.04	182	0.987	-0.11	274	0.952	-0.43			

### ELEVATION PATTERN

<b>TYPE:</b>	<b>ATW28HS6</b>		<b>Frequency:</b>	<b>30 (NTSC)</b>
<b>Directivity:</b>	<b>Numeric</b>	<b>dBd</b>	<b>Location:</b>	<b>Fresno, CA</b>
<b>Main Lobe:</b>	<u>28.40</u>	<u>14.53</u>	<b>Beam Tilt:</b>	<u>1.39</u>
<b>Horizontal:</b>	<u>3.13</u>	<u>4.96</u>	<b>Polarization:</b>	<u>Horizontal</u>



# TABULATED DATA FOR ELEVATION PATTERN

## ATW28HS6

-5 to 10 degrees in 0.25 increments    10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.000	0.097	-20.26	6.75	0.124	-18.13	27.00	0.026	-31.70	50.50	0.021	-33.56	74.00	0.025	-32.04
-4.750	0.093	-20.63	7.00	0.123	-18.20	27.50	0.028	-31.06	51.00	0.024	-32.40	74.50	0.026	-31.70
-4.500	0.090	-20.92	7.25	0.122	-18.27	28.00	0.031	-30.17	51.50	0.025	-32.04	75.00	0.026	-31.70
-4.250	0.095	-20.45	7.50	0.117	-18.64	28.50	0.029	-30.75	52.00	0.024	-32.40	75.50	0.025	-32.04
-4.000	0.108	-19.33	7.75	0.109	-19.25	29.00	0.025	-32.04	52.50	0.021	-33.56	76.00	0.024	-32.40
-3.750	0.122	-18.27	8.00	0.100	-20.00	29.50	0.026	-31.70	53.00	0.021	-33.56	76.50	0.021	-33.56
-3.500	0.130	-17.72	8.25	0.093	-20.63	30.00	0.029	-30.75	53.50	0.022	-33.15	77.00	0.019	-34.42
-3.250	0.129	-17.79	8.50	0.090	-20.92	30.50	0.028	-31.06	54.00	0.025	-32.04	77.50	0.016	-35.92
-3.000	0.123	-18.20	8.75	0.091	-20.82	31.00	0.024	-32.40	54.50	0.025	-32.04	78.00	0.013	-37.72
-2.750	0.128	-17.86	9.00	0.092	-20.72	31.50	0.025	-32.04	55.00	0.024	-32.40	78.50	0.012	-38.42
-2.500	0.159	-15.97	9.25	0.090	-20.92	32.00	0.028	-31.06	55.50	0.022	-33.15	79.00	0.011	-39.17
-2.250	0.212	-13.47	9.50	0.085	-21.41	32.50	0.027	-31.37	56.00	0.020	-33.98	79.50	0.012	-38.42
-2.000	0.270	-11.37	9.75	0.078	-22.16	33.00	0.024	-32.40	56.50	0.022	-33.15	80.00	0.014	-37.08
-1.750	0.316	-10.01	10.00	0.073	-22.73	33.50	0.023	-32.77	57.00	0.024	-32.40	80.50	0.016	-35.92
-1.500	0.337	-9.45	10.50	0.072	-22.85	34.00	0.026	-31.70	57.50	0.026	-31.70	81.00	0.018	-34.89
-1.250	0.323	-9.82	11.00	0.074	-22.62	34.50	0.027	-31.37	58.00	0.025	-32.04	81.50	0.020	-33.98
-1.000	0.266	-11.50	11.50	0.065	-23.74	35.00	0.024	-32.40	58.50	0.023	-32.77	82.00	0.021	-33.56
-0.750	0.166	-15.60	12.00	0.058	-24.73	35.50	0.022	-33.15	59.00	0.021	-33.56	82.50	0.022	-33.15
-0.500	0.030	-30.46	12.50	0.062	-24.15	36.00	0.025	-32.04	59.50	0.021	-33.56	83.00	0.023	-32.77
-0.250	0.144	-16.83	13.00	0.061	-24.29	36.50	0.027	-31.37	60.00	0.023	-32.77	83.50	0.023	-32.77
0.000	0.332	-9.58	13.50	0.052	-25.68	37.00	0.025	-32.04	60.50	0.025	-32.04	84.00	0.022	-33.15
0.250	0.521	-5.66	14.00	0.050	-26.02	37.50	0.022	-33.15	61.00	0.026	-31.70	84.50	0.021	-33.56
0.500	0.696	-3.15	14.50	0.054	-25.35	38.00	0.023	-32.77	61.50	0.025	-32.04	85.00	0.020	-33.98
0.750	0.840	-1.51	15.00	0.050	-26.02	38.50	0.025	-32.04	62.00	0.023	-32.77	85.50	0.019	-34.42
1.000	0.943	-0.51	15.50	0.044	-27.13	39.00	0.026	-31.70	62.50	0.021	-33.56	86.00	0.017	-35.39
1.250	0.997	-0.03	16.00	0.046	-26.74	39.50	0.023	-32.77	63.00	0.021	-33.56	86.50	0.015	-36.48
1.500	1.000	0.00	16.50	0.048	-26.38	40.00	0.021	-33.56	63.50	0.022	-33.15	87.00	0.014	-37.08
1.750	0.956	-0.39	17.00	0.043	-27.33	40.50	0.023	-32.77	64.00	0.024	-32.40	87.50	0.011	-39.17
2.000	0.875	-1.16	17.50	0.039	-28.18	41.00	0.025	-32.04	64.50	0.026	-31.70	88.00	0.009	-40.92
2.250	0.770	-2.27	18.00	0.042	-27.54	41.50	0.025	-32.04	65.00	0.026	-31.70	88.50	0.007	-43.10
2.500	0.657	-3.65	18.50	0.043	-27.33	42.00	0.022	-33.15	65.50	0.025	-32.04	89.00	0.005	-46.02
2.750	0.552	-5.16	19.00	0.037	-28.64	42.50	0.021	-33.56	66.00	0.023	-32.77	89.50	0.002	-53.98
3.000	0.467	-6.61	19.50	0.036	-28.87	43.00	0.024	-32.40	66.50	0.021	-33.56	90.00	0.000	---
3.250	0.406	-7.83	20.00	0.039	-28.18	43.50	0.025	-32.04	67.00	0.020	-33.98			
3.500	0.364	-8.78	20.50	0.038	-28.40	44.00	0.024	-32.40	67.50	0.021	-33.56			
3.750	0.331	-9.60	21.00	0.033	-29.63	44.50	0.021	-33.56	68.00	0.023	-32.77			
4.000	0.298	-10.52	21.50	0.033	-29.63	45.00	0.021	-33.56	68.50	0.025	-32.04			
4.250	0.264	-11.57	22.00	0.036	-28.87	45.50	0.023	-32.77	69.00	0.026	-31.70			
4.500	0.232	-12.69	22.50	0.035	-29.12	46.00	0.025	-32.04	69.50	0.026	-31.70			
4.750	0.208	-13.64	23.00	0.030	-30.46	46.50	0.024	-32.40	70.00	0.025	-32.04			
5.000	0.194	-14.24	23.50	0.031	-30.17	47.00	0.021	-33.56	70.50	0.023	-32.77			
5.250	0.186	-14.61	24.00	0.034	-29.37	47.50	0.021	-33.56	71.00	0.021	-33.56			
5.500	0.178	-14.99	24.50	0.032	-29.90	48.00	0.023	-32.77	71.50	0.020	-33.98			
5.750	0.168	-15.49	25.00	0.028	-31.06	48.50	0.025	-32.04	72.00	0.019	-34.42			
6.000	0.154	-16.25	25.50	0.029	-30.75	49.00	0.024	-32.40	72.50	0.020	-33.98			
6.250	0.139	-17.14	26.00	0.032	-29.90	49.50	0.022	-33.15	73.00	0.021	-33.56			
6.500	0.129	-17.79	26.50	0.030	-30.46	50.00	0.020	-33.98	73.50	0.023	-32.77			

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 04-24-2008 Time: 10:29:40

Record Selected for Analysis

KFSN-TV BLCDT -NEWKFSNDT30 FRESNO CA US  
Channel 30 ERP 260.00 kW HAAT 625.0 m RCAMSL 1458. m  
Latitude 037-04-38 Longitude 0119-26-0.  
Status LIC Zone 2 Border  
Dir Antenna Make CDB Model 00000000099902 Beam tilt N Ref Azimuth 0.0  
Last update Cutoff date Docket  
Comments  
Applicant ABC. INC.

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	41.0 dBu F(50,90) (km)
0.0	9.988	556.0	79.1
45.0	0.047	201.5	32.0
90.0	0.163	33.0	19.6
135.0	55.255	526.5	90.6
180.0	250.756	864.6	118.6
225.0	221.531	1040.9	122.5
270.0	218.735	940.9	119.5
315.0	148.932	978.5	116.9

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete



Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
30	KQED	SAN FRANCISCO CA	BDTV	-0000

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
29	KPIX-TV	SAN FRANCISCO CA	0.0	CP	BDTV	-0000
30	KFSN-TV	FRESNO CA	276.9	LIC	BLCDDT	-NEWKFSNDT30
30	KFSN-DT	FRESNO CA	276.9	PLN	DTVPLN	-DTVP0048
31	KSMS-TV	MONTEREY CA	139.3	CP	BPCDDT	-19991101AFU

Total scenarios = 1

Result key: 1  
Scenario 1 Affected station 1  
Before Analysis

Results for: 30A CA SAN FRANCISCO BDTV 0000 CP  
HAAT 509.0 m, ATV ERP 709.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	7658022	40543.8
not affected by terrain losses	6916658	34781.7
lost to NTSC IX	0	0.0
lost to additional IX by ATV	323024	1369.3
lost to ATV IX only	323024	1369.3
lost to all IX	323024	1369.3

Potential Interfering Stations Included in above Scenario 1

31A CA MONTEREY	BPCDDT	19991101AFU	CP
30A CA FRESNO	DTVPLN	DTVP0048	PLN

After Analysis

Results for: 30A CA SAN FRANCISCO BDTV 0000 CP  
HAAT 509.0 m, ATV ERP 709.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	7658022	40543.8
not affected by terrain losses	6916658	34781.7
lost to NTSC IX	0	0.0
lost to additional IX by ATV	347928	1578.1
lost to ATV IX only	347928	1578.1
lost to all IX	347928	1578.1

Potential Interfering Stations Included in above Scenario 1

31A CA MONTEREY	BPCDDT	19991101AFU	CP
30A CA FRESNO	BLCDDT	NEWKFSNDT30	LIC

The following station failed the de minimis interference criteria.  
30D CA FRESNO BLCDT NEWKFSNDT30  
ERP 260.00 kW HAAT 625.0 m RCAMSL 1458.0 m  
Antenna CDB 0000000099902

Due to interference to the following station and scenario: 1  
30D CA SAN FRANCISCO BDTV 0000  
ERP 709.00 kW HAAT 509.0 m RCAMSL 541.0 m  
Antenna CDB 0000000074814

Percent Service lost without proposal: 0.0 to BDTV 0000  
Percent Service lost with proposal: 0.4 to BDTV 0000

#####

Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
31	KSMS-TV	MONTEREY CA	BPCDT	-19991101AFU

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
30	KFSN-TV	FRESNO CA	187.2	LIC	BLCDT	-NEWKFSNDT30
30	KFSN-DT	FRESNO CA	187.2	PLN	DTVPLN	-DTVP0048
30	KQED	SAN FRANCISCO CA	139.3	CP	BDTV	-0000
31	KTLA-TV	LOS ANGELES CA	419.2	CP	BPCDT	-20000425AAV
32	KION-TV	MONTEREY CA	26.8	LIC	BLCDT	-20030604ACO

Proposed station is beyond the site to  
nearest cell evaluation distance

#####

