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BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

In the Matter of

Amendment of Section 73.622(b)
Digital Television Table of Allotments
Fresno, California

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MM Docket No. 99-____
RM-____

FILED
APR 28 2000
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

To: Chief, Allocations Branch

PETITION FOR RULE MAKING

Fisher Broadcasting - Fresno, L.L.C. ("Fisher"), licensee of television station KJEO(TV) (NTSC Channel 47), Fresno, California, by its undersigned attorneys and pursuant to Section 1.401 of the Commission's rules, hereby petitions the Commission to amend Section 73.622(b) of its rules to substitute DTV Channel 34 for DTV Channel 14 at Fresno, California, as the digital television channel assigned to KJEO(TV).

1. As demonstrated by the attached Technical Narrative which supports KJEO(TV)'s future application for a digital construction permit should the instant Petition be granted, DTV Channel 34 can be allotted to KJEO(TV) for digital television using the station's authorized NTSC transmitter site, in full compliance with all applicable coverage and allocation criteria. Specifically, the allocation of DTV Channel 34 to Fresno, California at the KJEO(TV) site will permit coverage of the entire community of Fresno with the requisite 41 dBu signal strength. In addition, the allocation will not increase interference to more than an additional two percent of the population served by any other analog or digital television station.

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2. Should the Commission allocate the channel requested herein, Fisher will promptly apply for a construction permit for the facility and undertake to build and operate the station if the permit is granted.

3. The allotment of Channel 34 is necessary to avoid the possibility of unintentional interference to land-mobile operations that may occur if KJEO-DT were to optimize its transmitting facilities on Channel 14. Television Channel 14 (470-476 MHz) is located just above a band of frequencies utilized primarily for land-mobile operations. This poses a problem for DTV operations. The characteristics of the 8-VSB DTV spectrum are such that the transmitted energy extends much closer to the edge of the allotted channel than NTSC transmissions. The additional energy contributed by optimizing KJEO's DTV facilities on Channel 14 would likely cause unintentional interference to the adjacent land-mobile frequencies. Further, while both Channel 14 and Channel 34 would provide only *de minimis* additional interference to other DTV or NTSC stations, the proposed Channel 34 DTV operation would cause a maximum of 0.3% interference population increase to co-channel Station KPST-DT, whereas maximized operations on Channel 14 would cause a 1.1% interference population increase to the licensed operation of co-channel NTSC TV Station KDTV. Finally, it should be noted that the proposed operation of KJEO-DT on Channel 34 would provide the entire principal community with a 40.7 dBu coverage contour as required by Section 73.623 of the Commission's rules.

4. Currently, low power television station KSDI-LP, Fresno, California is co-channel to Channel 34 and would be displaced by KJEO-DT's proposed operations. However, the Commission's Report and Order regarding the establishment of a Class A television service

permits a DTV station that has filed a notice of intent to maximize its facilities, as KJEO-DT has, to propose reallocation to a channel that does not protect an LPTV station, regardless of whether the LPTV has filed a Certificate of Eligibility for Class A status. *See, In the Matter of Establishment of Class A Television Service*, Report and Order, MM Docket No.00-10, FCC 00-115, released April 4, 2000.

For the foregoing reasons, Fisher respectfully requests that the Commission promptly initiate the rule making requested herein and that it substitute DTV Channel 34 for DTV Channel 14 at Fresno, California as the digital television channel assigned to KJEO(TV).

Respectfully submitted,

FISHER BROADCASTING - FRESNO, L.L.C.

By: 
Clifford M. Harrington
Brendan Holland

Its Attorneys

SHAW PITTMAN
2001 Pennsylvania Avenue, N.W.
Suite 400
Washington, D.C. 20006
(202) 659-3494

Dated: April 28, 2000

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EXHIBIT A

**Fisher Broadcasting - Fresno, LLC
TV Station KJEO
Fresno, California**

**Engineering Exhibit
in Support of Petition
for Rulemaking**

April 27, 2000

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HE **HAMMETT & EDISON, INC.**
CONSULTING ENGINEERS
SAN FRANCISCO

Station KJEO-DT • Fresno, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Fisher Broadcasting - Fresno, LLC, licensee of TV Station KJEO, Fresno, California, to prepare an engineering exhibit in support of its petition for rulemaking to amend the DTV Table of Allotments, Section 73.622(b), replacing the DTV Channel 14 allotment at Fresno with DTV Channel 34.

Background

TV Station KJEO is presently licensed to operate on NTSC Channel 47, serving Fresno, California, with directional transmitting facilities of 2,630 kilowatts peak visual effective radiated power at a height above average terrain of 597 meters. In the *Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order* in MM Docket 87-268, adopted February 23, 1998, the Commission reaffirmed the DTV Channel 14 allotment to KJEO. The specified parameters of the DTV Channel 14 operation were 50.2 kilowatts average effective radiated power (ERP) at 597 meters height above average terrain (HAAT), using a directional antenna pattern derived from the directional operation of the KJEO NTSC facility.

Proposed Allotment Change

It is proposed to change the KJEO-DT allotment to DTV Channel 34, with 330 kilowatts ERP (DTV average power), using an omnidirectional radiation envelope, at the previously specified 597 meters HAAT. It is not proposed to relocate the KJEO-DT operation from its original allotment site.

Justification for Channel Reallocation

TV Channel 14 (470–476 MHz) falls immediately above a band of frequencies utilized primarily by land-mobile operations. The characteristics of the 8-VSB DTV spectrum are such that the transmitted energy extends close to the channel edges (70% of maximum at 310 kHz inside the band edges), with a synchronizing pilot also included near the lower channel edge. KJEO is concerned that this energy for its optimized transmitting facility on Channel 14 would be likely to cause unintentional interference to land-mobile operations, because of the proximity of the 8-VSB spectra near the lower band edge.

Further, the radiation from a facility meeting the FCC Rules §73.622(h) emission limitation is required to be only 47 dB below the average transmitted power of the DTV facility from the channel edge to 500 kHz beyond the channel edge. For a maximized Channel 14 KJEO-DT facility

Station KJEO-DT • Fresno, California

operating with 330 kilowatts at its allotted HAAT [in accordance with calculations performed using FCC Rules §73.622(f)(8)(i)], it would be permissible for KJEO-DT to transmit up to 6.6 watts in the 469.5–470.0 MHz frequency range, with gradually reduced energy in the 464.0–469.5 band segment (reduced amplitude as the frequency moves downward from 469.5 MHz). Thus, the use of Channel 14 for full service DTV operations is likely to cause interference to land-mobile operations.

Allocation Conditions for DTV Channels 14 and 34

A spacing and OET-69 allocation study was conducted at the allotment site to compare the allotted KJEO-DT operation on Channel 14 to the proposed operation on Channel 34. Figure 1 shows the results of an FCC spacing study, conducted in accordance with FCC Rules §73.623(d)(2) for facilities not meeting the spacing distances prescribed in that section. As shown, the Channel 14 allotment is short-spaced to one operating co-channel NTSC station and to one co-channel NTSC allotment, while the proposed Channel 34 allotment does not meet the spacing requirements with one NTSC facility (–8 channel taboo), one co-channel DTV station, and one NTSC allotment (+7 channel taboo). However, the OET-69 interference analysis summaries of Figures 2A (for a maximized operation on Channel 14) and 2B (for the proposed Channel 34 operation) show that the Channel 14 operation would cause 1.1% interference population increase to the licensed operation of co-channel NTSC TV Station KDTV, while the proposed Channel 34 DTV operation would cause a maximum of 0.3% interference population increase to co-channel Station KPST-DT.* Both of the interference population figures meet the FCC *de minimus* criteria for added interference to other NTSC or DTV facilities by a DTV station. Figure 2C describes the operation of the Hammett & Edison OET-69 interference analysis computer program.

Section 73.623 requires coverage of the principal community, which is met by the proposed KJEO-DT operation on Channel 34. Figure 3 shows the 40.7 dBu F(50,90) coverage contour for the proposed KJEO-DT facility, clearly encompassing its city of license.

Impact on Station KSDI-LP

Station KSDI-LP, Channel 34, Fresno, California, is co-channel to the proposed KJEO-DT operation, and would be displaced. In accordance with the provisions of the Community Broadcasters Protection Act, signed into law on November 29, 1999, KSDI-LP has submitted a Certificate of Eligibility (“COE”) to become a Class A protected TV station. However, the provisions of the Report and Order to FCC Mass Media Docket No. 00-10, *Establishment of a*

* No interference is predicted to be caused to any other of the facilities listed in the Figure 1 spacing analysis.

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Class A Television Service, adopted on March 28, 2000, at Paragraph 63, allow DTV stations that have filed a notice of intent to maximize, as KJEO-DT has, to propose reallocation to a channel that does not protect an LPTV station, even though that LPTV station has submitted a timely-filed COE request. While it is believed that Channel 34 is the best selection for a maximized KJEO-DT operation, Paragraph 64 of that document states that full-service DTV stations requesting an adjustment in the DTV Table of Allotments need not demonstrate that the adjustment can *only* be made in the fashion proposed.

Summary

Operation of KJEO-DT on DTV Channel 34 from the allotted site with 330 kW ERP meets the FCC Rules for protection of NTSC operations and DTV allotments from interference and for service of the principal community.

List of Figures

In carrying out these engineering studies, the following attached figures were prepared under my direct supervision:

1. Spacing study comparison
2. Summaries of OET-69 interference studies
3. Map of proposed KJEO-DT allotment coverage.

April 27, 2000




Stanley Salek, P.E.

Affidavit

State of California |
County of Sonoma | ss:

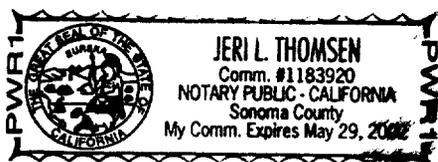
Stanley Salek, being first duly sworn upon oath, deposes and says:

1. That he is a qualified Registered Professional Engineer, holds California Registration No. E-14217 which expires on June 30, 2001, and is employed by the firm of Hammett & Edison, Inc., Consulting Engineers, with offices located near the city of San Francisco, California,
2. That he graduated from Florida Institute of Technology with a Bachelor of Science degree in Electrical Engineering in 1981, was employed from 1981 to 1991 in the field of radio engineering at companies including Motorola, Inc., Broadcast Electronics, Inc., Circuit Research Labs, Inc., and the National Association of Broadcasters, and has been associated with the firm of Hammett & Edison, Inc., since July 1991,
3. That the firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Fisher Broadcasting - Fresno, LLC, licensee of TV Station KJEO, Fresno, California, to prepare an engineering exhibit in support of its petition for rulemaking to amend the DTV Table of Allotments, Section 73.622(b), replacing the DTV Channel 14 allotment at Fresno with DTV Channel 34,
4. That such engineering work has been carried out by him or under his direction and that the results thereof are attached hereto and form a part of this affidavit, and
5. That the foregoing statement and the report regarding the aforementioned engineering work are true and correct of his own knowledge except such statements made therein on information and belief and, as to such statements, he believes them to be true.



Stanley Salek, P.E.

Subscribed and sworn to before me this 27th day of April, 2000



Station KJEO-DT • Fresno, California

**Proposed DTV Reallocation from Channel 14 to Channel 34
Comparison of FCC Rules §73.623(d)(2) Allocation Spacing Requirements Not Met**

Present Allotment - DTV Channel 14 (Maximized 330 kW ERP Operation)

<u>Facility</u>	<u>Channel</u>	<u>Required Spacing</u>	<u>Actual Spacing</u>	<u>Comment</u>
KDTV (Lic.)	N14	> 244.6 km	222.1 km	short by 22.5 km OET-69 study shows 1.1% added interference population (See Figure 2A)
Bishop, CA Allotment	N14	> 244.6	96.8	short by 147.8 km (old NTSC allotment; likely to be deleted)

Proposed Allotment - DTV Channel 34

<u>Facility</u>	<u>Channel</u>	<u>Required Spacing</u>	<u>Actual Spacing</u>	<u>Comment</u>
KMPH	N26	< 24.1 or > 96.6 km	66.2 km	OET-69 study shows no interference (See Figure 2B)
KTAS-DT Allotment	D34	> 223.7	219.6	OET-69 study shows no interference (See Figure 2B)
KTAS-DT (App.)	D34	> 223.7	219.6	OET-69 study shows no interference (See Figure 2B)
Yosemite Valley, CA Allotment	N41	< 24.1 or > 96.6	76.2	short by 20.4 km (old NTSC allotment; likely to be deleted)

Station KJEO-DT • Fresno, California

Summary of OET-69 Interference Study of Present Channel 14 Allotment, Maximized to 330 kW ERP using Nondirectional Transmitting Antenna

Interference analysis
tvixstudy 2.3.5

Before case parameters:
(same as "Original" below)

After case parameters:

--Modified-----	--Original-----
Station: D14 KJEODT allot	D14 KJEODT allot
City: FRESNO, CA	FRESNO, CA
Coordinates: N 37-04-14.0	N 37-04-14.0
W 119-25-31.0	W 119-25-31.0
Height AMSL: 1435.0 m	1435.0 m
Maximum ERP: 330 kW	50.2 kW
Azimuth pattern: omnidirectional	DTV0140 (replication)
Orientation:	0.0
Elevation pattern: OET-69 generic	OET-69 generic
Service level: 38.7 dBu	38.7 dBu

Protected station	BasePop 1000s	Before		After		
		IX Change 1000s	%Base	IX Change 1000s	%Base	%Chng
N21 KFTV LIC HANFORD, CA	1,150	4	0.3	4	0.3	0.0
N21 KFTV CP HANFORD, CA	1,222	4	0.3	4	0.3	0.0
N14 KDTV LIC SAN FRANCISCO, CA	5,347	87	1.6	142	2.7	1.1
D15 KSBY-DT APP SAN LUIS OBISPO, CA	414	23	5.6	23	5.6	0.0
D15 KSBYDT allot SAN LUIS OBISPO, CA	414	15	3.6	15	3.6	0.0
ERP = 1000 kW						
D15 KBSVDT allot CERES, CA	359	-572	-159	-572	-159	0.0
ERP = 200 kW						

Station KJEO-DT • Fresno, California

**Summary of OET-69 Interference Study of Proposed
Change to DTV Allotment from Channel 14 to Channel 34**

Interference analysis
tvixstudy 2.3.5

Before case parameters:
(same as "Original" below)

After case parameters:

--Modified-----	--Original-----
Station: D34 KJEODT allot	D14 KJEODT allot
City: FRESNO, CA	FRESNO, CA
Coordinates: N 37-04-14.0	N 37-04-14.0
W 119-25-31.0	W 119-25-31.0
Height AMSL: 1435.0 m	1435.0 m
Maximum ERP: 330 kW	50.2 kW
Azimuth pattern: omnidirectional	DTV0140 (replication)
Orientation: 0.0	0.0
Elevation pattern: OET-69 generic	OET-69 generic
Service level: 40.7 dBu	38.7 dBu

++Warning - some records had missing or bad data:

N20 960919KZ APP Missing or bad azimuth pattern data, substituted omni

Protected station	BasePop 1000s	Before		After		%Chng
		IX Change 1000s	%Base	IX Change 1000s	%Base	
N34 KMEX-TV LIC LOS ANGELES, CA	12,385	117	0.9	117	0.9	0.0
N34 KMEX-TV CP LOS ANGELES, CA	12,667	87	0.7	87	0.7	0.0
N30 KFSN-TV LIC FRESNO, CA	1,127	7	0.6	7	0.6	0.0
N26 KMPH LIC FRESNO, CA	1,135	0	0.0	0	0.0	0.0
N20 960919KZ APP BISHOP, CA	20	0	0.0	0	0.0	0.0
N20 960920WP APP BISHOP, CA	35	0	0.0	0	0.0	0.0
D35 KCRA-DT CP SACRAMENTO, CA	4,499	235	5.2	235	5.2	0.0
D35 KCRADT allot SACRAMENTO, CA	4,499	-106	-2.4	-106	-2.4	0.0
ERP = 1000 kW						
D34 KPST-DT APP VALLEJO, CA	5,161	-173	-3.4	-159	-3.1	0.3
D34 KPSTDT allot VALLEJO, CA	5,161	-39	-0.8	-32	-0.6	0.2
ERP = 63.9 kW						
D34 KPSTDT allot VALLEJO, CA	5,161	-204	-4.0	-197	-3.8	0.2
ERP = 200 kW						
D33 KBAK-DT APP BAKERSFIELD, CA	538	-270	-50.2	-270	-50.2	0.0
D33 KBAKDT allot BAKERSFIELD, CA	538	-5	-0.9	-5	-0.9	0.0
ERP = 70.1 kW						
D33 KBAKDT allot BAKERSFIELD, CA	538	-93	-17.3	-93	-17.3	0.0
ERP = 200 kW						
D34 KTAS-DT APP SAN LUIS OBISPO, CA	272	-25	-9.2	-25	-9.2	0.0
D34 KTASDT allot SAN LUIS OBISPO, CA	272	3	1.1	3	1.1	0.0
ERP = 50.0 kW						
D34 KTASDT allot SAN LUIS OBISPO, CA	272	-93	-34.2	-93	-34.2	0.0
ERP = 200 kW						
D34 KRNVD-DT APP RENO, NV	393	-64	-16.3	-64	-16.3	0.0
D34 KRNVDV allot RENO, NV	393	67	17.0	67	17.0	0.0
ERP = 1000 kW						

TVIXSTUDY™ Analysis Methodology

Implementation of FCC's Interference-Based Allocation Algorithm

On April 21, 1997, the Federal Communications Commission released its Fifth and Sixth Report and Order texts to Mass Media Docket No. 87-268, establishing a final Table of Allotments for the transition from analog NTSC television service to a digital television (“DTV”) service. The Commission utilized a complex set of computerized analysis tools to generate the DTV allotment table and added FCC Rules Section 73.623(b)(2), requiring that similar tools be employed to analyze individual DTV station assignments with regard to their potential interference to other DTV stations, DTV allotments, and existing or authorized NTSC facilities. Those tools were described in FCC OET Bulletin No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference* (“OET-69”), released on July 2, 1997. Subsequent to OET-69, the Commission released, on February 23, 1998, its Memorandum Opinion and Order on Reconsideration of the Fifth [and Sixth] Report and Order[s], which made a number of changes to the previous allotment table and modified several of the analysis methods to be employed for studying DTV allotments and potential facility modifications. On August 10, 1998, the Commission published a text, *Additional Application Processing Guidelines for Digital Television (DTV)*, which provided important clarifications and enhancements to the specified analysis methods. Hammett & Edison has developed and refined the TVIXSTUDY computer software to perform FCC-style DTV allocation studies as based on OET-69, its subsequent clarifications, and also upon a detailed examination of the FCC allotment program software source code.

For most NTSC or DTV stations to be studied, the FCC analysis model first determines the location of the conventional F(50,50) Grade B contour of the NTSC station, or of the NTSC station associated with an assigned DTV station, using pattern information contained in the FCC engineering database and an assumed antenna elevation pattern. The model assumes that contour as an envelope, outside of which no protection from interference is implied or afforded. The location of the Grade B contour was used to determine the assigned power for the DTV station, once again using conventional methods found in FCC Rules Section 73.699, Figures 9 and 10, determining the power necessary on a radial basis to generate the associated DTV coverage contour (41 dBu for UHF, 36 dBu for high VHF Channels 7–13, and 28 dBu for low VHF Channels 2–6), for an assigned DTV channel. The maximum power determined using this method was assigned as the DTV operating power, provided it was calculated to be above established minimum power levels; otherwise, a minimum power level was assigned. By the same token, facilities with calculated DTV power levels above the established maximum power levels for a given channel were assigned the maximum power level. The use of this method usually creates a directional DTV antenna replication pattern, even for DTV assignments to presently omnidirectional NTSC TV stations. The FCC requires that a DTV facility employ an antenna design that meets the calculated replication envelope parameters, unless, with a few exceptions, zero or *de minimus* new interference to other facilities can be demonstrated.

In addition to the use of the Grade B envelope and an assumed directional transmitting antenna for all DTV facilities, the model assumes the use of directive receiving antennas at each studied location, or “cell.” The characteristics of the receiving antennas are different, not only for the low



VHF, high VHF, and UHF frequency bands, but also for NTSC and DTV receiving situations; the FCC model specifies that more directive antennas be employed for analysis of DTV reception.

The FCC analysis technique employs terrain-sensitive calculation methods based on Version 1.2.2 of the ITS Irregular Terrain Model, also known as the Longley-Rice model. For each NTSC or DTV station to be studied, a grid of cells, two kilometers on a side, fills the associated Grade B or noise-limited contour. The program first determines which of the cells is predicted to receive service from the associated station, using Longley-Rice analysis with F(50,50) statistical weighting for NTSC and F(50,90) statistical weighting for DTV stations. Cells determined to have no service are not studied for interference from other stations.* Once cells having service are determined, the software analyzes potential interference from other NTSC or DTV stations, again using the Longley-Rice propagation algorithm and defined statistical weighting for all potential interfering signals. Each cell is evaluated, as appropriate, using the desired-to-undesired ratios and methods presented in FCC Rules Section 73.622, 73.623, and 74.706 for each channel relationship, and cells determined to have interference are flagged and excluded from further study, resulting in the generation of net interference-free coverage population totals.

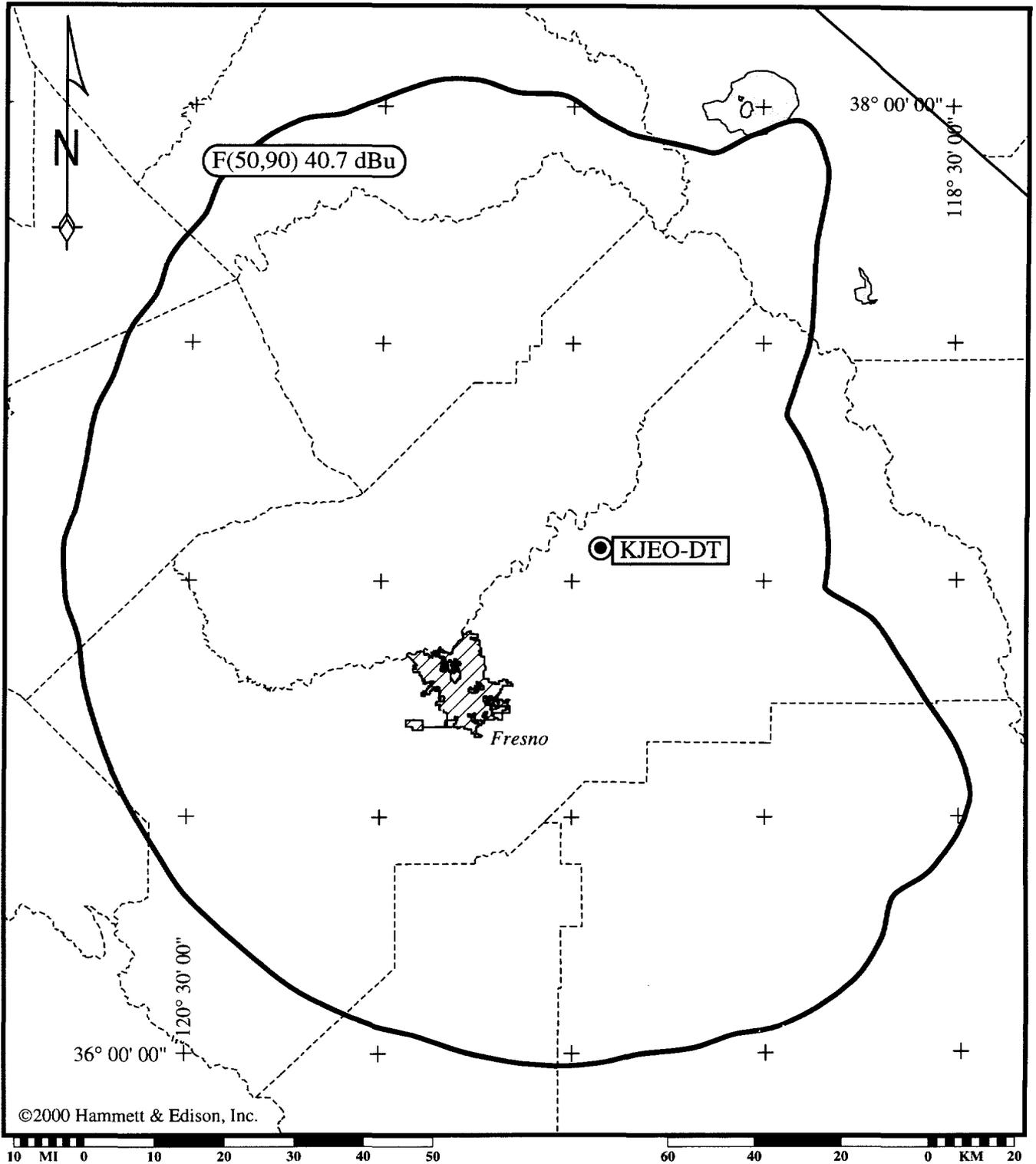
The TVIXSTUDY analysis program employs all of the OET-69 analysis features described above, as well as several other more subtle elements prescribed by the FCC. Additionally, the program allows modeling of implementation scenarios that involve changes to effective radiated power, antenna height, antenna pattern, channel number, and/or transmitter location. TVIXSTUDY also can identify cells that fall in major bodies of water, as based on digitized map data, excluding them from the study. The program is primarily intended to study the effects of existing/potential NTSC or DTV facilities on other DTV or NTSC facilities, as based on desired-to-undesired ratio parameters defined in OET-69. A typical TVIXSTUDY analysis summary includes technical parameters of the proposed DTV or NTSC facility, along with its original (pre-modification) technical parameters, if any. Also included is a listing of each protected DTV and/or NTSC facility or allotment with associated interference-free population tabulations and the unique interference population resulting from operation of the proposed facility. TVIXSTUDY is similar to the program TVCOVSTUDY, which instead predicts the interference-limited coverage of a selected facility.

The results of the OET-69 algorithm are dependent on the use of computer databases, including terrain, population, and FCC engineering records. FCC Rules §0.434(e) specifically disclaims the accuracy of its databases, recommending the use of primary data sources (*i.e.*, paper documents), which is not practical for DTV interference analyses. Further, while Hammett & Edison, Inc. endeavors to follow official releases and established precedents on the matter, FCC policy on DTV analysis methods is constantly changing. Thus, the results of OET-69 interference and coverage studies are subject to change and may differ from FCC results.

* It is noted that the Longley-Rice model is not always capable of determining, within certain confidence limits, whether a particular cell has service. In such cases, the Longley-Rice algorithm returns an error code; the FCC method for handling such error codes is to assume that the associated cells have interference-free service and, as such, are not further considered. The Hammett & Edison TVIXSTUDY program reports the number of such error cells for a given study and provides the option of generating a map showing their locations, which may be useful for further review using other propagation analysis tools.

Station KJEO-DT • Fresno, California

Coverage Contour of Proposed DTV Operation on Channel 34
330 kilowatts ERP at 597 meters HAAT



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Map data taken from Sectional Aeronautical Charts, published by the National Ocean Survey. City limits shown taken from 1995 U.S. Census Bureau TIGER data. Geographic coordinate marks shown at 30-minute increments.