

Before the  
**Federal Communications Commission**  
Washington, D.C. 20554

In the Matter of )  
 )  
Amendment of Section 73.215 of the )  
Commissions Rules and Regulations )  
Contour Protection for Short-Spaced )  
FM Assignments )

RM- \_\_\_\_\_

**FILED/ACCEPTED**

TO: Marlene H. Dortch, Secretary  
Federal Communications Commission  
ATTN: Media Bureau

**JAN 18 2011**

Federal Communications Commission  
Office of the Secretary

**PETITION FOR RULE MAKING**

Calvary Chapel of Costa Mesa, Inc. ("Calvary"), by its attorney, hereby respectfully requests the Media Bureau to issue a Notice of Proposed Rule Making proposing to substitute the following language for the existing "Note to Paragraph (b)" of Section 73.215 of the Commission's Rules, 47 C.F.R. Section 73.215:<sup>1</sup>

"Notes to Paragraph (b):

1. Applicants are cautioned that the antenna HAAT in any particular direction of concern will not usually be the same as the standard eight-radial antenna HAAT or the reference HAAT for the station class.
  
2. In the anomalous situation where an antenna's center of radiation is calculated to be underground, and for the sole purpose of

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<sup>1</sup> Currently, Note to Paragraph (b) of Section 73.215, reads as follows: "Applicants are cautioned that the antenna HAAT in any particular direction of concern will not usually be the same as the standard eight-radial antenna HAAT or the reference HAAT for the station class." We are adding one additional note. Note 1 is the original note.

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calculating the interfering contour of that facility, (a) in the case of a vacant allotment the antenna will be assumed to be mounted at 61 meters AGL (and at the standard eight-radial HAAT corresponding thereto), (b) in the case of a proposed station, the antenna will be assumed to be mounted at the proposed HAAT, and (c) in the case of an existing station, the antenna will be assumed to be mounted at the existing HAAT. The maximum ERP will be set pursuant to Section 73.211 for the applicable station class using the applicable HAAT figure from this paragraph.”

#### I. Background of Petition

1. FM stations in the commercial portion of the band are normally allocated on the basis of a table of spacings set forth in Section 73.207 of the Commission’s Rules and Regulations, 47 C.F.R. Section 73.207. In 1989, however, the Commission enacted a new rule, Section 73.215, which allows short spacings based upon contour protection. Calvary is the licensee of FM Broadcast Station KWVE-FM (“KWVE”), San Clemente, California. KWVE is a short-spaced station under Section 73.215.

2. The existing Section 73.215 rules require that a station applying under its provisions (like KWVE) must protect other stations licensed under Section 73.207 by assuming “maximum class”<sup>2</sup> facilities for each Section 73.207 station. This affords full protection to Section 73.207 stations that might be operating with less than maximum facilities for their classes and preserves the ability for such stations to upgrade to “maximum class” in the future.

3. In contrast, some Section 73.207 stations choose to operate with antenna heights that are greater than those of their reference class by reducing their power levels to comply with Section 73.211. Over normal terrain this process will produce an equivalent protected service area using the F(50,50) propagation curves. However, using increased height and a reduced power determined by Section 73.211 can shorten the distance to the station’s

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<sup>2</sup> As used in this Petition, “maximum class” is defined as the maximum ERP at the reference HAAT for the class of the station as listed in Section 73.211; for example, 50 kW ERP at 150 meters HAAT for Class B operation.

F(50,10) interference contour. The existing Section 73.215 rules are simple and straightforward, but can produce anomalous results as shown below.

4. Because of the nature of radio propagation at VHF frequencies, FM broadcasters have favored high locations, such as mountaintops, for their tower sites. Unfortunately, when the current version of Section 73.215 is used to protect such a facility, the required "maximum class" facility can have its antenna buried underground—sometimes by as much as several hundred feet. When this happens, the assumptions underlying the standard propagation curves are no longer valid, and the accuracy of their predictions breaks down. Using the existing F(50,10) propagation curves, the interfering contour would normally enlarge as antenna height is lowered and ERP is increased. However, in the real world, when the antenna goes underground, the earth absorbs the signal and the actual interfering contour distance would essentially go to zero.

5. These concepts are fully illustrated and explained in an Engineering Exhibit supporting this Petition, prepared under the direction of Alan E. Gearing, P.E., an associate in the firm of Mullaney Engineering, Inc. A copy of that exhibit is attached hereto as Exhibit A and made a part hereof.

## II. Changes Requested

6. The proposed addition of a "Note 2" to Section 73.215(b) seeks to provide a more "real world" methodology. It is important to understand that in an effort to maintain the long-standing protections to Section 73.207 stations, the note does not propose any change in the way the protected service contour of the Section 73.207 station is calculated. In fact, no existing protected contours will be altered by this proposal.

7. The only change requested is in the way the interference contour of the Section 73.207 station is calculated when the present rules require an antenna to be theoretically buried. For existing or proposed Section 73.207 stations, the proposed Note 2 requires the existing or proposed antenna height be used at whatever power level Section 73.211 determines is the maximum equivalent facility. For vacant allotments where no facilities have yet been specified, Note 2 proposes that a 61 meter antenna height above ground be used since this is the tallest possible tower that can be built without aviation painting and lighting. This height figure also provides a reasonable assumption regarding the control of human exposure to radiofrequency radiation. In brief, Note 2 always places the antenna above ground where the assumptions underlying the F(50,10) curves are valid.

8. The proposed Note 2 will provide improved accuracy in predicting the location of the Section 73.207 interfering contour without introducing undue complexity into the calculation. In fact, the calculation would be virtually as simple and straightforward as the present rule. The proposed rule modification will maintain the current protections to Section 73.207 stations, retain the simplicity and repeatability of the present system, and greatly improve the accuracy of the interfering contour location.

9. In the case of Station KWVE, the current rule requires an assumption that the antenna of co-channel Station KUZZ-FM ("KUZZ"), Bakersfield, California, be buried 209 meters (686 feet) underground to place it at the "maximum class" reference distance of 150 meters HAAT with the power increased to 50 kW ERP. Based upon these fictitious assumptions, KUZZ creates interference toward KWVE that does not actually exist. As a result of these assumptions, KWVE is required to maintain a directional antenna to avoid the fictitious received interference.

### III. Public Interest Benefits

10. Chairman Genachowski has repeatedly emphasized that the Commission's decision making process should be "fact based and data driven."<sup>3</sup> In this case, the assumption that the KUZZ antenna is below ground is neither fact based nor data driven. It is an engineering anomaly. No FM antenna could possibly be constructed underground and still radiate a meaningful signal. The ground would absorb the radiofrequency power.

11. Therefore, Calvary is requesting that the Commission amend its rules to include the reasonable language contained in the proposed Note 2. Grant of this Petition will simply change the rule from one that is based upon a fiction to one that is based upon fact. Adoption of Note 2 does not change in any way the protections afforded to Section 73.207 stations. Note 2 does, however, offer additional flexibility to stations authorized under Section 73.215 without in any way creating the possibility of interference to stations authorized under Section 73.207. Note 2 directly addresses the Commission's position of predicating its decisions on facts and data.

### IV. Conclusion

12. To summarize, the change Calvary proposes will modernize Section 73.215, bring it into the 21<sup>st</sup> Century, and promote the Commission's objective of making fact based and data driven decisions. It will give additional flexibility to stations authorized under Section 73.215 without creating any injury to Section 73.207 stations. Therefore, the change

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<sup>3</sup> *News Release, FCC Launches Data Innovation Initiative*, released June 29, 2010.

serves the public interest and should be adopted.

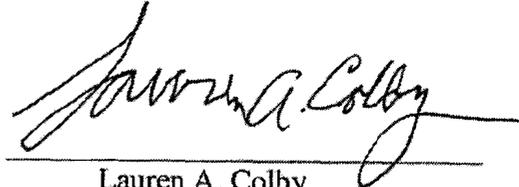
Respectfully submitted,

January 18, 2011

CALVARY CHAPEL OF COSTA MESA, INC.

Law Office of  
LAUREN A. COLBY  
10 E. Fourth Street  
P.O. Box 113  
Frederick, MD 21701  
(301) 663-1086

By:

A handwritten signature in black ink, appearing to read "Lauren A. Colby", written over a horizontal line.

Lauren A. Colby  
Its Attorney

EXHIBIT A  
ENGINEERING EXHIBIT

JOHN J. MULLANEY  
JOHN H. MULLANEY, P.E. (1984)  
ALAN E. GEARING, P.E.  
TIMOTHY Z. SAWYER

301 921-8115 Voice  
301 690-9757 Fax

Mullaney@MullEngr.com

**MULLANEY ENGINEERING, INC.**

9049 SHADY GROVE COURT  
GAITHERSBURG, MD 20877

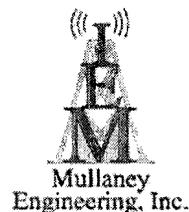
**ENGINEERING EXHIBIT RM:**

**MODIFICATION OF SECTION 73.215:  
CONTOUR PROTECTION FOR  
SHORT-SPACED ASSIGNMENTS**

**JANUARY 2011**

ENGINEERING STATEMENT IN SUPPORT OF  
A RULE MAKING TO MODIFY SECTION 73.215  
**TO ELIMINATE AN ANOMALY**  
WHEN MAXIMIZATION RESULTS IN AN  
ANTENNA WHICH IS UNDERGROUND

Prepared on behalf of  
**Calvary Chapel of Costa Mesa, Inc.**



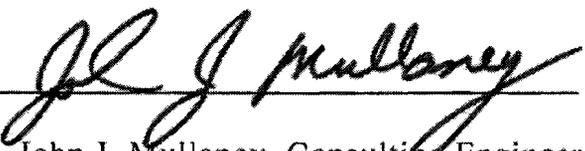
STATE OF MARYLAND            )  
COUNTY OF MONTGOMERY    )

**Declaration**

I, John J. Mullaney, declare and state that I am a graduate electrical engineer with a B.E.E. and my qualifications are known to the Federal Communications Commission, and that I am a principal engineer in the firm of Mullaney Engineering, Inc., and that I have provided engineering services in the area of telecommunications since 1977. My qualifications as an expert in radio engineering are a matter of record with the Federal Communications Commission.

The firm of Mullaney Engineering, Inc., has been requested by **Calvary Chapel of Costa Mesa, Inc.**, to prepare the instant engineering exhibit in support of a rule making petition to amend Section 73.215 - Contour Protection for Short-Spaced Assignments.

All facts contained herein are true of my own knowledge except where stated to be on information or belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_  
John J. Mullaney, Consulting Engineer

Executed on the 14<sup>th</sup> day of January 2011.

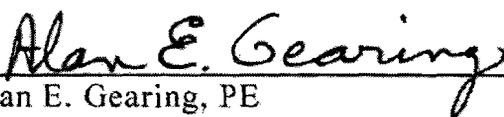
MULLANEY ENGINEERING, INC.

STATE OF MARYLAND                    )  
COUNTY OF MONTGOMERY            )

I, Alan E. Gearing, declare that: I am a graduate electrical engineer with a Bachelor of Science degree in Electrical Engineering from SUNY University at Buffalo; I am a registered professional engineer in the District of Columbia (since 1979); I am a full member of the Association of Federal Communications Consulting Engineers; I am a senior engineer in the firm of Mullaney Engineering, Inc., consulting broadcast and radio communications engineers with offices in Gaithersburg, Maryland; and I have provided engineering services in the areas of broadcasting and radio communications since 1973.

My qualifications as an expert in radio engineering are a matter of record before the FCC, as I have filed numerous applications and reports which have been accepted by the Commission.

I certify that I have reviewed the instant Engineering Statement and I further certify that to the best of my knowledge and belief that it is true and correct. I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_  
Alan E. Gearing, PE  
District of Columbia Number 7406

Executed on the 14<sup>th</sup> day of January 2011

**ENGINEERING EXHIBIT EE-RM:**

**MODIFICATION OF SECTION 73.215:  
CONTOUR PROTECTION FOR  
SHORT-SPACED ASSIGNMENTS**

**JANUARY 2011**

**NARRATIVE STATEMENT:**

This engineering statement has been prepared on behalf of Calvary Chapel of Costa Mesa, Inc. ("Calvary"), in support of a rule making petition to amend Section 73.215 - Contour Protection for Short-Spaced Assignments. **regarding how interference contours of non-73.215 Commercial FM stations are computed. It is emphasized that no change is proposed regarding how the protected contour is computed for any FM facility.**

Properly spaced Commercial FM facilities are stations that utilize transmitter sites that meet or exceed the minimum distance separation between stations in accordance with the tables in Section 73.207. Commercial FM stations (including non-commercial FM stations operating on Ch. 218, 219 & 220) proposing transmitter locations which are **less than** the minimum separations specified are considered **"short-spaced"** facilities. Such newly short spaced facilities are permissible only if they comply with the requirements of Section 73.215 - Contour Protection for Short-Spaced Assignments. Specifically, the proposed facilities (location, ERP & HAAT) of the station "proposing" the new short spacing must not result in prohibited contour overlap being **"caused to" or "receive from"** that other

FM station. If that other Commercial FM station is itself **“not already authorized”** under section 73.215, it is required to be protected based upon the **“assumption”** that it is operating with the **“maximum Class facilities”** permitted, regardless of what actual facilities may be in place (including use of a directional antenna).

By **“maximum Class facilities”** we mean the station will be assumed to be an “Omni” operation using **“maximum Class ERP”** at the **“reference Class HAAT”** specified by Section 73.211(b)(1). For example, the maximum Class facility of a Class A FM station would be 6 kW (“Omni”) at 100 meters HAAT; the maximum Class facility of a Class B FM station would be 50 kW (“Omni”) at 150 meters HAAT, etc. The word **“station”** is used in a generic sense to include operating stations, authorized CPs, pending applications for new or modified stations and even Vacant FM allotments. **Only “Commercial” FM** stations that are currently not authorized under Section 73.215 are entitled to protection based upon “maximum Class facilities”. Non-Commercial FM stations operating on Ch. 218, 219 & 220 and Commercial FM stations already authorized under Section 73.215 **are not protected based upon maximized facilities**. These stations are protected for the exact ERP (including any use of a directional antenna) and the exact HAAT they are authorized to operate. **Underdeveloped** Commercial FM stations operate with either the ERP or HAAT which is less than the “maximum Class facilities” and neither of which is greater than the “maximum Class facilities”. **Excessive HAAT** refers to any facility operating with an HAAT which exceeds the “reference Class HAAT” regardless of its ERP.

## CONTOUR PROTECTION OF UNDERDEVELOPED COMMERCIAL FM STATIONS

For Commercial FM stations **operating with less than** the maximum Class facilities, the **maximization process is simple**. Both the ERP & HAAT are set to the maximum permitted for that Class of FM station. Maximization insures that the "non-73.215" Commercial FM facility is evaluated based upon its maximum potential protected "coverage" contour and for its maximum potential "interfering" contour. This insures that in the future, should this other Commercial FM station decide to improve its underdeveloped facility, it can do so **without the potential** of creating prohibited contour overlap to the station which sought to become short spaced per Section 73.215.

## CONTOUR PROTECTION OF COMMERCIAL FM STATIONS OPERATING WITH EXCESSIVE HAAT

However, in instances where the station is operating with an antenna HAAT which is **above that normally permitted** for that Class of FM facility, the maximization process **can yield anomalous results** in mountainous areas where the **excessive HAAT is mainly the result** of the antenna site ground elevation on the mountain specified in meters Above Mean Sea Level (AMSL) or the HAAT is essentially due to **the height of the mountain and not the result of the physical Above Ground Level (AGL) height of the supporting structure** (i.e., a tower).

## EXCESS CLASS HAAT MAXIMIZATION IN AREAS OF FLAT TERRAIN

As an example, take the operation of a Commercial Class A FM operating in an area which has **relatively flat terrain** within 16 km of the tower site (let's assume a location in the State of Florida). For a Class A station to achieve the maximum permissible HAAT of 100 meters it would have to mount the center of radiation of its FM antenna at an approximate AGL height of 100 meters. Similarly to achieve an HAAT of 200 meters it would have to mount its antenna at an approximate AGL height of 200 meters, of course with the ERP appropriately reduced so as not to exceed the reference Class distance to the 60 dBu contour, which for a Class A FM is 28 km (see Section 73.211(b)). Both the 100 meter and 200 meter HAATs being discussed are easily envisioned in the State of Florida or anywhere which is relatively flat within 16 km of the site.

FM stations operating with an **excessive Class HAAT** are generally able to operate at a reduced ERP which essentially maintains a 60 dBu coverage contour which is **nearly identical** to that resulting when maximum Class facilities are assumed. However, the distance to the **actual "interfering" contours** of that excess HAAT facility are nearly **always smaller** than those of a facility operating with the reference Class HAAT. In our "Florida" example, the Class A FM might elect at some time in the future to **lower its 200 meter antenna height** down to the 100 meter reference Class HAAT with the ERP being appropriately

increased to 6 kW. While this modification would essentially maintain its 60 dBu coverage contour it would now generate **substantially larger interference contours** which could result in interference “caused to” the station that created the short spacing. It is for this reason, that the rule requires use of maximum facilities when determining compliance with the requirement that **no interference is “cause to or received from”** the station requesting the short spacing. The proposed rule amendment would not alter maximization of this case because no underground antenna would be involved.

## **EXCESS CLASS HAAT MAXIMIZATION IN AREAS OF MOUNTAINOUS TERRAIN**

The maximization procedure which has the understandable goal - to avoid interference being caused to or received from newly short spaced stations - **does not work so well when the excessive Class HAAT is the result from the antenna being located on a mountain.** There the maximization procedure can result in an antenna center of radiation which is **“underground” - a physical impossibility** (see **Figure 1 - the example at the top of the page (KUZZ-FM) would have to dig a hole in the mountain which is 209 meters or 686 feet deep**). So unlike the Florida example discussed earlier, it can often be **physically impossible** for a station located in the mountains to achieve the reference Class HAAT without digging a very big hole (50 to 500 m deep). As a result of the assumed use of an **underground antenna**, station KUZZ is assumed to generate interference contours which extend a much greater

distance than is physically possible, thus, **artificially restricting** the coverages of some stations.

Under the FCC rules, every FM station has up to nine separate interference contours depending upon the Class of the other station to which protection is being provided (B1, B, A to C) and whether the other station operates Co-Channel or on the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> adjacent channel). Regardless of which of these interfering contours is to be computed (34, 37 or 40 dBu [Co]; 48, 51 or 54 dBu [1<sup>st</sup>], 94, 97, or 100 dBu [2<sup>nd</sup>/3<sup>rd</sup>]), if the facility operates with excessive Class HAAT, computing the distance to the contour at the licensed HAAT will nearly always result in the distance to the interference contour being smaller than if the computation is maximized based upon the reference Class facility. **There is no engineering justification for using the underground antenna and its resulting larger interference distances when insuring the protection of the station requesting the short spacing from receiving such interference when it is physically impossible for those larger distances to be achieved.** We believe that when the FCC initially adopted Section 73.215, the Staff did not anticipate this anomaly.

## REAL WORLD CASE STUDY OF EXCESS CLASS HAAT MAXIMIZATION IN AREAS OF MOUNTAINOUS TERRAIN

Calvary Chapel was faced with this very dilemma when it filed an application for **KWVE-FM** which operates on Ch. 300B at San Clemente, CA, using a directional antenna (DA) operating with a maximum ERP of 0.53 kW at 1.156 meters HAAT. That application was filed in hopes of eliminating the need for KWVE's existing DA. The sole purpose of the DA is to prevent KWVE from **receiving imaginary, non-existent interference** from **KUZZ-FM** which operates on Ch. 300B at Bakersfield, CA, with an ERP of 6 kW at an HAAT of **416** meters (yielding an excess HAAT of 266 meters when compared to the reference Class facility HAAT), and to which KWVE is presently short spaced per Section 73.215. It should be emphasized that KWVE's DA **is not required to protect** the 54 dBu service area of KUZZ, and is only required because the maximization of KUZZ's excessive HAAT caused its interference contour to extend unrealistically further than is possible.

KUZZ is able to achieve its excessive Class B HAAT of **416** meters (1,365') with only having to physically mount its FM antenna center of radiation at a mere **+57** meters (187') AGL. Subtracting 57 meters from 416 meter HAAT indicates that the first 359 meters of KUZZ's licensed HAAT is provided by the ground elevation of the mountain with only the last 57 meters or 13.7% of the HAAT being provided by the physical tower height - **the infamous situation of excessive Class HAAT**. KWVE **requested a waiver** of the maximization requirement of Section 73.215 to permit the interference contours of KUZZ to be based upon its

licensed HAAT of 416 meters rather than the reference Class maximum of 150 meters, thus, eliminating the need for KWVE to continue to use its DA which suppresses the ERP in the short spaced direction **by 10.17 dB or to 9.6% of its Max ERP (the licensed relative field pattern of KWVE is provided as Figure 2-B). That waiver was denied.**

In the case of KUZZ, maximizing its antenna height which was **209 meters underground**, caused KWVE's application requesting processing under Section 73.215 to artificially limit its ERP to **9.6%** in the short spaced direction. This unnecessary reduction in ERP prevented the KWVE protected contour from serving significant areas and populations and, thus, prevented the reception of its new service. While the proposed service area expansion proposed by KWVE was served by numerous other stations - **there are certainly potential situations for other stations where the area might be considered "under-served" (having less than 5 aural services).** Accordingly, a strong Public Interest factor warranting grant of the waiver or of a modification of the rule can be justified.

**Figure 2** is a map showing the interference contour for KUZZ-FM using its licensed facility of 6 kW at 416 meters HAAT and the reference Class B maximum of 50 kW at 150 meters HAAT. The map also includes a tabulation comparing the distance to the various interference contours under both operating conditions assuming nominal HAATs. As can be seen from the tabulation, the maximized 150 meter HAAT contour (absent terrain & with an Omni operation) is

**always larger** than those of the licensed facility, thus showing that maximization causes the distance to the relevant interference contours to be greater than necessary (from 0.4% to 40%).

In the **co-channel** situation, involving KUZZ & KWVE the maximized 150 meter 34 dBu interference contour is typically **+19 km or 12.4% greater** than that generated by the licensed facility (see tabulation on Figure 2). Thus, the **"underground"** antenna, which is completely unrealistic, artificially restricts the potential ERP of KWVE since its protected 54 dBu contour must avoid an overlap with the KUZZ 34 dBu interference contour.

**Figure 2-A** is a map showing the protected 54 dBu contours and co-channel 34 dBu interference contours for KUZZ-FM & KWVE. For KUZZ the **dark RED** is for the licensed HAAT while the **PINK** is for the maximized (underground antenna) 150 meter HAAT. For KWVE the **dark BLUE** is for the licensed DA facility while the **light BLUE** is for an "Omni" facility. **As is illustrated, if the KUZZ interference contour is based upon the licensed HAAT, there would be no prohibited contour overlap to KWVE's protected "Omni" 54 dBu contour.**

**Figures 3 & 4** are similar maps to that presented in **Figure 2** for the case involving a **Class B FM**, except that they illustrate what happens for a case involving a **Class C FM** station (KNCQ in Redding, California) and for a

case involving a Class A FM station (KHTO in Hot Springs, Arkansas). As a result of maximization, the KNCQ antenna is **452 m underground** and the KHTO antenna is **119 m underground**. While the Licensed ERP of KHTO is 0.94 kW, it appears the correct "maximum equivalent" Class A ERP at an HAAT of 246 m is 1.0 kW. Thus, the ERP of 1.0 kW was used in generation of this map.

These figures demonstrate that the "maximization" requirement in 73.215 can result in unrealistic interference contours for all Classes (A, B & C) of FM stations if the antenna center of radiation is required to be "underground".

When actual terrain is used in the computation of interfering contours it is possible for the licensed HAAT contours to sometimes extend outside of the maximum Class contours (see **shading** on Figures 2, 3 & 4). However, overall the use of the licensed HAAT to determine the interfering contour is less restrictive and will result in **greater flexibility** when selecting transmission sites by most stations.

## REQUESTED MODIFICATION OF RULE SECTION 73.215

Calvary Chapel of Costa Mesa, Inc. ("Calvary"), herein submits a rule making petition to amend Section 73.215 - Contour Protection for Short-Spaced Assignments, **regarding how interference contours of the non-73.215 station are computed. It is emphasized that no change is proposed regarding how the protected contour is computed for any FM facility.**

Calvary requests the Media Bureau to issue a Notice of Proposed Rule Making proposing to substitute the following language for the existing "Note to Paragraph (b)" of Section 73.215 of the Commission's Rules, 47 C.F.R. Section 73.215:<sup>1</sup>

"Notes to Paragraph (b):

1. Applicants are cautioned that the antenna HAAT in any particular direction of concern will not usually be the same as the standard eight-radial antenna HAAT or the reference HAAT for the station class.
2. In the anomalous situation where an antenna's center of radiation is calculated to be underground, and for the sole purpose of calculating the interfering contour of that facility, (a) in the case of a vacant allotment the antenna will be assumed to be mounted at 61 meters AGL (and at the standard eight-radial HAAT corresponding thereto), (b) in the case of a proposed station, the antenna will be assumed to be mounted at the proposed HAAT, and (c) in the case of an existing station, the antenna will be assumed to be mounted at the existing HAAT. The maximum ERP will be set pursuant to Section 73.211 for the applicable station class using the applicable HAAT figure from this paragraph."

<sup>1</sup> Currently, Note to Paragraph (b) of Section 73.215, reads as follows: "Applicants are cautioned that the antenna HAAT in any particular direction of concern will not usually be the same as the standard eight-radial antenna HAAT or the reference HAAT for the station class." We are adding one additional note. Note 1 is the original note.

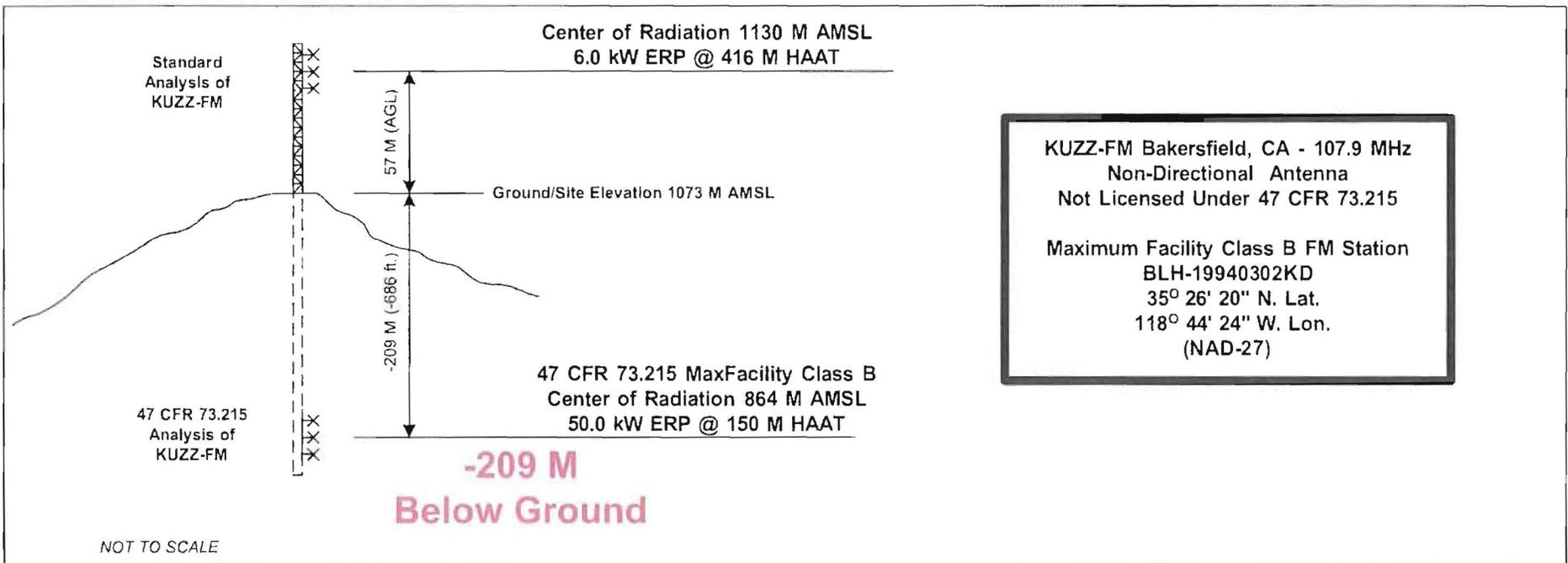
SUMMARY

Adoption of this proposed very limited modification, of Section 73.215 - Contour Protection for Short-Spaced Assignments, **will eliminate a technical anomaly** in the computation of interfering contours of non-73.215 facilities operating with excessive Class HAAT that **artificially & unnecessarily restricts** the ability of many stations from maximizing their short spaced facilities because of the requirement to avoid **“receiving”** reference Class interference that is physically impossible to materialize in the real world. The contour protection rules **should not utilize an interference contour** from an assumed **buried FM antenna** that would never be constructed and which would not appreciably radiate if it were constructed. The requested modification of this rule does not alter the way in which any “protected” contours are computed and, therefore, **will not increase** the likelihood that objectionable interference will be caused to any FM station.

  
John J. Mullaney, Consulting Engineer

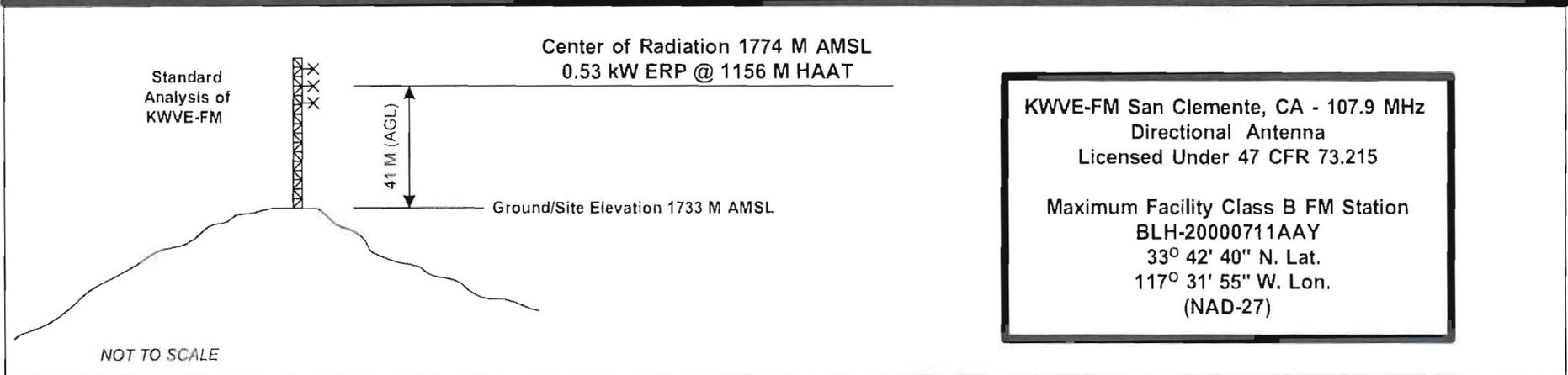
  
Alan E. Gearing, PE, Consulting Engineer

January 14, 2011.



KUZZ-FM Bakersfield, CA - 107.9 MHz  
Non-Directional Antenna  
Not Licensed Under 47 CFR 73.215

Maximum Facility Class B FM Station  
BLH-19940302KD  
35° 26' 20" N. Lat.  
118° 44' 24" W. Lon.  
(NAD-27)



KWVE-FM San Clemente, CA - 107.9 MHz  
Directional Antenna  
Licensed Under 47 CFR 73.215

Maximum Facility Class B FM Station  
BLH-20000711AAY  
33° 42' 40" N. Lat.  
117° 31' 55" W. Lon.  
(NAD-27)

**FIGURE 1**  
**EXAMPLE OF CLASS MAXIMIZATION**  
**per Section 73.215**  
**Resulting in Antenna Underground by 209 m**



**FIGURE 2 - KUZZ (Class B)  
EXAMPLE OF EXCESSIVE  
INTERFERENCE CONTOUR DISTANCES  
Section 73.215 - Maximization  
Resulting in Antenna Underground 209 m**

RM Petition to Modify Section 73.215

**KUZZ-FM LIC CLASS B  
6.0 kW at 416 m HAAT  
CR: 1,130 m AMSL +57 m AGL**

**73.215 - MAX CLASS B  
50 kW at 150 m HAAT  
CR: 864 m AMSL -209 m AGL**

**1st Adjacent  
B to A  
54 dBu int  
EXTENDS**

**2nd / 3rd Adj  
B to B  
94 dBu int  
IMPROVED**

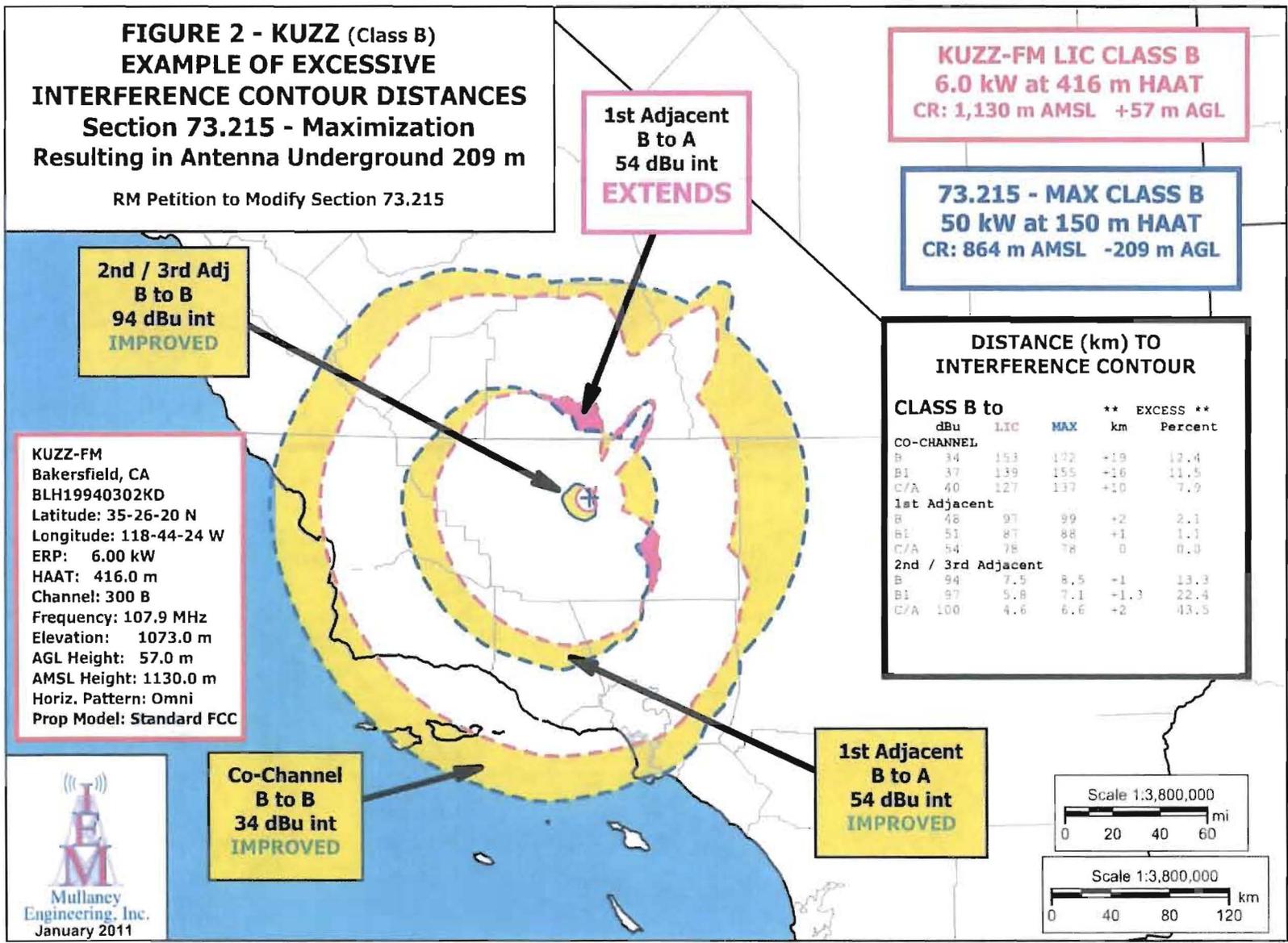
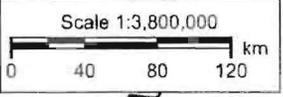
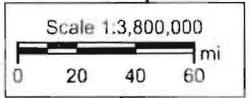
**DISTANCE (km) TO INTERFERENCE CONTOUR**

CLASS B to		** EXCESS **			
dBu	LIC	MAX	km	Percent	
<b>CO-CHANNEL</b>					
B	34	153	172	+19	12.4
B1	37	139	155	+16	11.5
C/A	40	127	137	+10	7.9
<b>1st Adjacent</b>					
B	48	97	99	+2	2.1
B1	51	87	88	+1	1.1
C/A	54	78	78	0	0.0
<b>2nd / 3rd Adjacent</b>					
B	94	7.5	8.5	+1	13.3
B1	97	5.8	7.1	+1.3	22.4
C/A	100	4.6	6.6	+2	43.5

**KUZZ-FM  
Bakersfield, CA  
BLH19940302KD  
Latitude: 35-26-20 N  
Longitude: 118-44-24 W  
ERP: 6.00 kW  
HAAT: 416.0 m  
Channel: 300 B  
Frequency: 107.9 MHz  
Elevation: 1073.0 m  
AGL Height: 57.0 m  
AMSL Height: 1130.0 m  
Horiz. Pattern: Omni  
Prop Model: Standard FCC**

**Co-Channel  
B to B  
34 dBu int  
IMPROVED**

**1st Adjacent  
B to A  
54 dBu int  
IMPROVED**



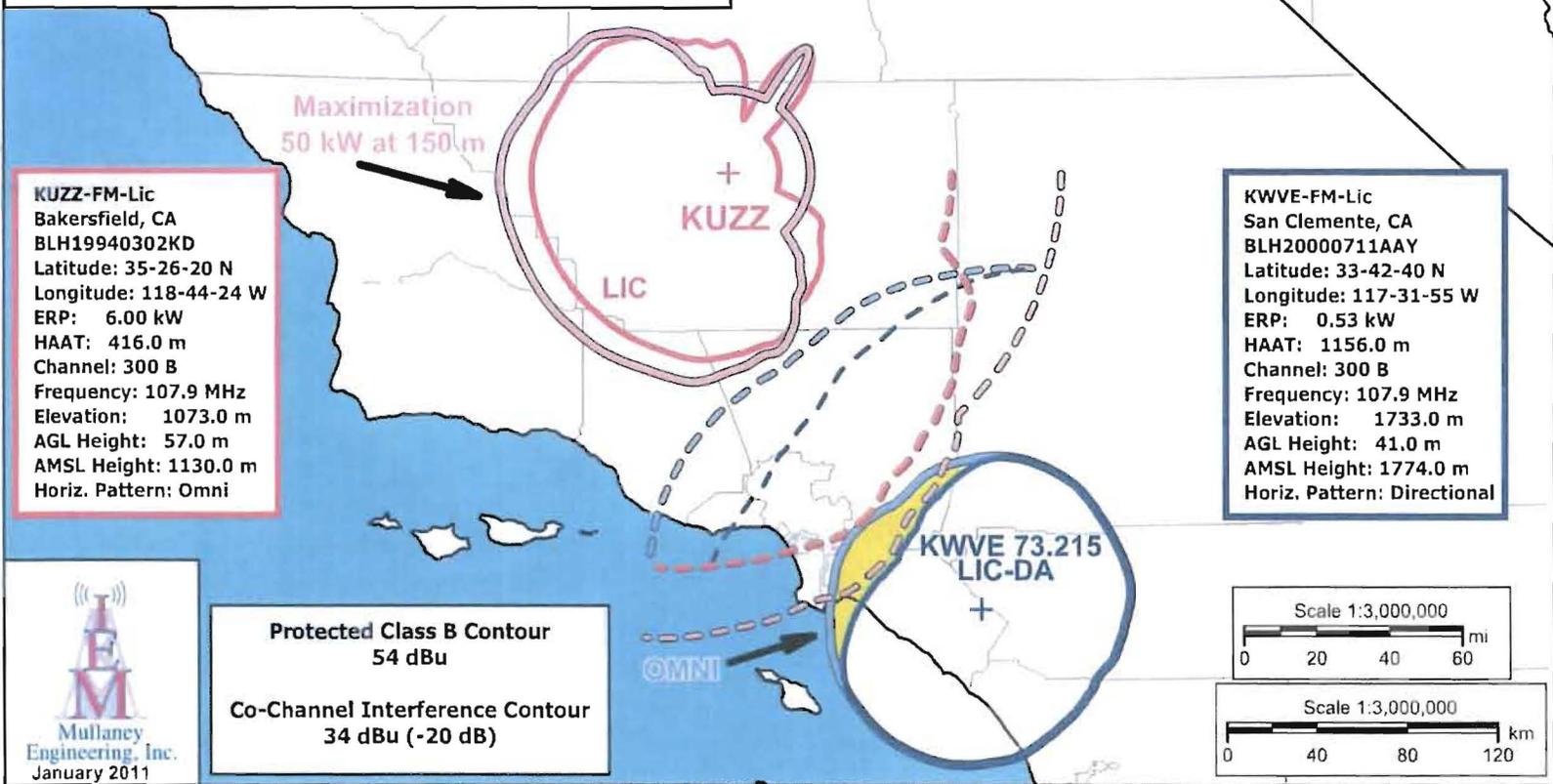
**FIGURE 2-A - KUZZ (Class B)  
BENEFIT OF USING LICENSED FACILITY  
ADJUSTED FOR MAX EQUIVALENCY  
TO DETERMINE  
INTERFERENCE CONTOUR DISTANCES  
Section 73.215**

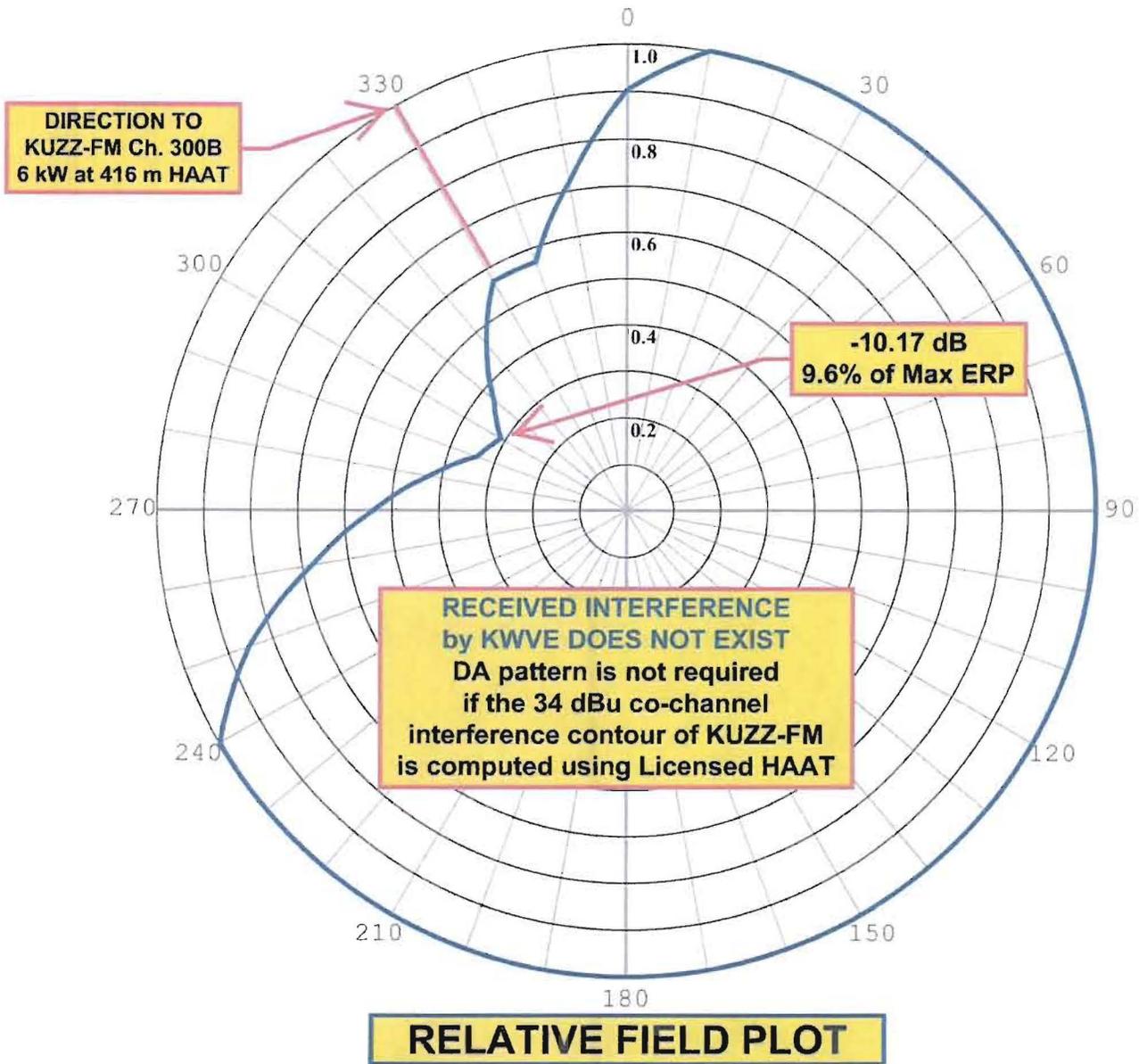
**Antenna is Above Ground**

RM Petition to Modify Section 73.215

Determining the interference "caused" by the non-73.215 facility (KUZZ) based upon its Licensed Facilities (Maximized for Licensed HAAT) will permit KWVE to eliminate the need to utilize a Directional Antenna to reduce its ERP to the Northwest (towards KUZZ).

This change in the maximization will permit KWVE to increase its population served by over 2.5 million persons.





Pattern 1 (KWVE) : Value - Bearings: 36 (36 shown) - RMS: 0.885 - Orientation: 0

0.0: 0.904	60.0: 1.000	120.0: 1.000	180.0: 1.000	240.0: 1.000	300.0: 0.310
10.0: 1.000	70.0: 1.000	130.0: 1.000	190.0: 1.000	250.0: 0.855	310.0: 0.370
20.0: 1.000	80.0: 1.000	140.0: 1.000	200.0: 1.000	260.0: 0.679	320.0: 0.466
30.0: 1.000	90.0: 1.000	150.0: 1.000	210.0: 1.000	270.0: 0.539	330.0: 0.570
40.0: 1.000	100.0: 1.000	160.0: 1.000	220.0: 1.000	280.0: 0.428	340.0: 0.570
50.0: 1.000	110.0: 1.000	170.0: 1.000	230.0: 1.000	290.0: 0.340	350.0: 0.718



**FIGURE 2-B - KWVE-FM LIC  
REQUIRED DIRECTIONAL ANTENNA PATTERN  
per Section 73.215**

**Resulting Because of KUZZ Antenna Underground by 209 m**

RM Petition to Modify Section 73.215  
January 2010

**FIGURE 3 - KNCQ (Class C)  
EXAMPLE OF EXCESSIVE  
INTERFERENCE CONTOUR DISTANCES  
Section 73.215 - Maximization  
Resulting in Antenna Underground 452 m**

RM Petition to Modify Section 73.215

**KNCQ FM LIC CLASS C**  
28 kW at 1,088 m HAAT  
CR: 1,913 m AMSL +36 m AGL

**73.215 - MAX CLASS C**  
100 kW at 600 m HAAT  
CR: 1,425 m AMSL -452 m AGL

**2nd / 3rd Adj  
C to C/A  
100 dBu int  
IMPROVED**

**Co-Channel  
C to C/A  
40 dBu int  
IMPROVED**

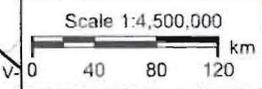
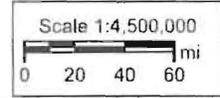
**DISTANCE (km) TO INTERFERENCE CONTOUR**

CLASS C to	dBu	LIC	MAX	** EXCESS **	km	Percent
<b>CO-CHANNEL</b>						
B	34	231	232	+1	0.4	
B1	37	213	214	+1	0.5	
C/A	40	196	198	+2	1.0	
<b>1st Adjacent</b>						
B	48	158	160	+2	1.3	
B1	51	146	148	+2	1.4	
C/A	54	134	137	+3	2.2	
<b>2nd / 3rd Adjacent</b>						
B	94	19.4	21.5	+2.1	10.8	
B1	97	13.8	17.5	+3.7	26.8	
C/A	100	10.3	13.7	+3.4	33.0	

**KNCQ**  
Redding, CA  
BLH19851104KF  
Latitude: 40-36-10 N  
Longitude: 122-38-58 W  
ERP: 28.00 kW  
HAAT: 1088.0 m  
Channel: 247 C  
Frequency: 97.3 MHz  
Elevation: 1877.0 m  
AGL Height: 36.0 m  
AMSL Height: 1913.0 m  
Horiz. Pattern: Omni  
Prop Model: Standard FCC

**EXTENDS  
CONTOUR**

**1st Adjacent  
C to C/A  
54 dBu int  
IMPROVED**



**FIGURE 4 - KHTO (Class A)  
EXAMPLE OF EXCESSIVE  
INTERFERENCE CONTOUR DISTANCES  
Section 73.215 - Maximization  
Resulting in Antenna Underground 119 m**

RM Petition to Modify Section 73.215

**2nd / 3rd Adj  
A to C/A  
100 dBu int  
IMPROVED**

**Co-Channel  
A to C/A  
40 dBu int  
IMPROVED**

**KHTO FM LIC CLASS A  
0.94 kW at 246 m HAAT  
CR: 417 m AMSL +27 m AGL  
Max Eq ERP = = 1.0 kW**

**73.215 - MAX CLASS A  
6 kW at 100 m HAAT  
CR: 271 m AMSL -119 m AGL**

**KHTO**  
Hot Springs, AR  
BMLH20050616AAK  
Latitude: 34-24-13 N  
Longitude: 093-07-14 W  
ERP: 1.00 kW  
HAAT: 246.0 m  
Channel: 244 A  
Frequency: 96.7 MHz  
Elevation: 390.0 m  
AGL Height: 27.0 m  
AMSL Height: 417.0 m  
Horiz. Pattern: Omni  
Prop Model: Standard FCC

1 kW ERP is max Permitted  
while Lic is 0.94 kW

**DISTANCE (km) TO  
INTERFERENCE CONTOUR**

CLASS A to	dBu	LIC	MAX	** EXCESS **	km	Percent
<b>CO-CHANNEL</b>						
B	34	100	113	+13	13.0	
B1	37	90	98	+8	8.9	
C/A	40	81	87	+6	7.4	
<b>1st Adjacent</b>						
B	48	58	60	+2	3.4	
B1	51	50	52	+2	4.0	
C/A	54	43	44	+1	2.3	
<b>2nd / 3rd Adjacent</b>						
B	94	3.4	4.0	+0.6	17.6	
B1	97	2.6	3.3	+0.7	26.9	
C/A	100	2.0	2.8	+0.8	40.0	

**EXTENDS  
CONTOUR**

**1st Adjacent  
A to C/A  
54 dBu int  
IMPROVED**

