

Bureau dismissed a waiver application by Calvary to authorize this modification.² The Audio Division held that Calvary had fallen short of establishing the rare and exceedingly narrow grounds necessary to justify a waiver of Section 73.215(a) to allow otherwise-prohibited contour overlap between KWVE-FM and KUZZ-FM.³ Calvary petitioned for reconsideration of the Audio Division's Decision; its petition is still pending.

Having failed for three and a half years to obtain a waiver of Section 73.215 that would allow KWVE-FM to nondirectionalize its antenna, Calvary now seeks to achieve its desired result by way of a change to Section 73.215 itself. Calvary's Petition proposes a second "Note" to paragraph (b) of Section 73.215 that would, "[i]n the anomalous situation where an antenna's center of radiation is calculated to be underground," change the reference height of that facility's antenna for purposes of a Section 73.215 overlap calculation.⁴

Calvary proclaims that its proposed rule change will "modernize Section 73.215, bring it into the 21st Century, and promote the Commission's objective of making fact based and data driven decisions."⁵ Aside from these ostensibly benign and laudable goals, but less obviously stated in the Petition, is that Calvary's proposal will modify Section 73.215 in such a way to permit the KWVE-FM nondirectionalization that Calvary has been attempting to achieve via waiver for years. Regardless, as explained below and in the attached Engineering Statement, Calvary's proposal warrants no further Commission action because its asserted benefits are outweighed by a triad of countervailing factors—new "anomalies" in the rule's application, extensive grandfathering scenarios, and regulatory uncertainty as to the very value (antenna height) that the Petition attempts to address.

² See File No. BPH-20070919ABO.

³ See Letter to Lauren Colby, et al., from Peter H. Doyle, Chief, Audio Division, Media Bureau, DA 08-1475, 23 FCC Rod 9971 (Audio Div. Jun. 24, 2008).

⁴ Petition at 1-2.

⁵ *Id.* at 5.

Calvary makes much of the asserted “anomaly” with respect to stations with “underground” reference heights for purposes of a Section 73.215 calculation.⁶ However, the Petition’s attempt to correct this anomaly merely leads to another, which may create confusion among broadcasters and Commission staff. Specifically, because the Petition does not address protected contours, on some azimuths, a non-Section 73.215 station’s protected contour may extend beyond its first-adjacent interfering contour.⁷ This may be particularly true for Class B stations. This illogical scenario of numerous FM stations whose protected contours extend beyond their interfering contours would create significant difficulties for both applicants and Commission staff in analyzing and evaluating Section 73.215 situations.

Moreover, if implemented, Calvary’s proposed rule change would create significant grandfathering scenarios. As an initial matter, Calvary’s proposal would modify the Section 73.215 interfering contours of some 905 licensed stations (or nearly 10% of licensed FM stations).⁸ Further, and as shown in Calvary’s own examples, the proposed rule change would create new Section 73.215 overlap areas that would be subject to grandfathering.⁹

Additionally, within the context of its proposed note with respect to vacant allotments, Calvary’s proposal gives significant leeway for gamesmanship that will doubtlessly consume the Commission’s resources through protracted contested proceedings. Calvary proposes to calculate the interfering contour of a vacant allotment using an antenna height of 61 meters above ground level.¹⁰ While this may appear to be a precise, fact-based value, in reality it is not. As shown in the attached Engineering Statement, the USGS 7.5 minute topographical maps that

⁶ *Id.* at 3.

⁷ Engineering Statement at 6-7.

⁸ Engineering Statement at 3; FCC, Broadcast Totals as of December 31, 2010 (Feb. 11, 2011) at http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0211/DOC-304594A1.pdf (stating that, as of December 31, 2010, there were 9,837 licensed commercial and noncommercial educational FM stations).

⁹ Engineering Statement at 5; Petition, Engineering Exhibit, Figs. 2, 3 and 4.

¹⁰ Petition at 2.

are used to determine ground levels have a wide range of elevation contour intervals.¹¹ Some maps plot elevations in five foot intervals. Others use 80 foot intervals. As a result, the ground level of an allotment point becomes a matter of interpretation rather than precision. Moreover, at the 80 foot elevation interval, the variability in predicted contours becomes non-trivial. The interpretation of elevation data will likely lead to disagreements that the Commission will be asked to resolve.

In short, Calvary's proposal may facilitate the particular technical modification that it has been pursuing for so long. It would do so, however, at the cost of multiple new "engineering anomalies," grandfathering scenarios, and regulatory uncertainty. On balance, the proposal would not serve the public interest. Accordingly, Owens believes the Commission should take no further action on the Petition or the Section 73.215 modification it proposes.

Respectfully submitted,

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¹¹ Engineering Statement at 3-5.

ENGINEERING STATEMENT

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**Engineering Statement
Comments in RM-11620
March 2011**

This Engineering Statement has been prepared on behalf of Owens One Company, Inc. ("Owens") in support of comments being filed in response to a Public Notice dated February 18, 2011, which solicited comments on RM-11620, a Petition for Rulemaking filed by Calvary Chapel of Costa Mesa, Inc. ("Calvary").

Calvary's Proposal

Calvary has proposed to modify §73.215 of the Commission's Rules, to change the assumptions which are used when calculating the interfering contour produced by the "victim" station or allotment, in cases where the "victim" station or allotment is not itself authorized under §73.215. (Vacant allotments are, of course, never authorized under §73.215.)

Currently, §73.215(b)(2)(i) and §73.215(b)(2)(ii) define the power and height to be used for these calculations as follows:

(i) For vacant allotments, contours are based on the presumed use, at the allotment's reference point, of the maximum ERP that could be authorized for the station class of the allotment, and antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the station class of the allotment.

(ii) For existing stations that were not authorized pursuant to this section, including stations with authorized ERP that exceeds the maximum ERP permitted by §73.211 for the standard eight-radial antenna HAAT employed, and for applications not

requesting authorization pursuant to this section, contours are based on the presumed use of the maximum ERP for the applicable station class (as specified in §73.211), and the antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the applicable station class, without regard to any other restrictions that may apply (e.g. zoning laws, FAA constraints, application of §73.213).

It is true, as Calvary notes, that in some cases the current rule requires that one calculate these contours using an assumed antenna height above mean sea level which places the transmitting antenna below ground, by anywhere from one meter to a few hundred meters. Calvary decries this "anomaly" and proposes adding a "Note 2" to §73.215 such that when application of §73.215(b)(2)(i) and §73.215(b)(2)(ii) would place the antenna below ground:

- a) The interfering contour (but not the protected contour) of a "victim" station would be calculated based on the station's authorized antenna height AMSL and the maximum corresponding ERP for the station class (derated for height);
- b) The interfering contour of a "victim" allotment would be calculated based on an assumption that the transmitting antenna is located 61 meters above ground level at the reference coordinates, with the maximum corresponding ERP for the station class (derated for height).

Inherent in Calvary's proposal is that their suggested modification of §73.215 will eliminate an anomaly in the contour protection rules. But while the proposal may eliminate the particular anomaly of which Calvary complains, one must be mindful of the fact that adoption of Calvary's language will in fact create other anomalies, grandfathered overlap, and uncertainty.

The Proposal Affects Hundreds of Stations

Calvary's proposed Note 2 is no small adjustment. This would in fact represent a major revision to §73.215 which, if adopted, would modify the method of calculating the interfering contour distances for hundreds of stations, particularly those in the western states where mountainous terrain allows stations to utilize greatly elevated transmitter sites.

A search of the Commission's database has been conducted to identify those licensed non-reserved-band stations which are not authorized under §73.215, and which per §73.215(b)(2)(ii) would appear to have antennas located below ground. These are the stations which would consequently be subject to Calvary's proposed Note 2. That search identified:

298 Class A stations	200 Class B stations
75 Class C3 stations	59 Class C1 stations
45 Class B1 stations	10 Class C0 stations
99 Class C2 stations	119 Class C stations

In total, Calvary's proposal would modify the §73.215 interfering contours of at least 905 licensed stations.¹

The Site Elevation to be Used for Vacant Allotments is Subject to Bias

The proposed Note 2 would require that, in the case where the antenna center of radiation for a vacant allotment is calculated to be underground, the interfering contour of that allotment should be calculated assuming an antenna which is mounted at 61 meters above ground.

This proposal raises a serious question as to how the ground-level elevation above sea level will be determined.

¹ Non-§73.215 construction permits and applications are excluded from this count, as are NCE stations operating on Channels 218, 219, and 220.

The USGS 7.5 minute topographic maps have contour intervals which range from as little as 5 feet to as much as 80 feet. Therefore, even when relying on these maps it is possible for two people to arrive at ground elevations which can differ by as much as 80 feet. Consider, for example, a situation where the allotment point happens to be at the top of a relatively broad hilltop which does not have a defined "spot" elevation for its highest point. If the contour interval on this map is 80 feet, all one really knows is that the elevation at the highest point is anywhere from 1 to 79 feet above the last contour line. This 24 meter discrepancy is enough to cause some distinct variability in the distances to the interfering contour, particularly in directions where a few meters of elevation can mean the difference between a radial HAAT value less than 30 meters, and one which is greater than 30 meters.²

While the topographic maps are (apart from a survey) considered to be the most reliable source for terrain elevation data for the purposes of calculating average terrain height under §73.313, the calculation of average terrain height is a far different animal than determining a spot elevation for vacant allotments. Calculation of average terrain height involves at least 50 data points per radial (as per §73.313(d)(3)), and usually 131 data points per radial (i.e. one data point every 0.1 km between 3 and 16 km from the transmitter site). The inclusion of so many data points causes individual errors and uncertainties in reading the data off of the map to cancel each other out. Not so for reading the elevation of one isolated location.

Neither would it be appropriate to utilize spot elevations derived from a terrain database. Terrain databases include elevation data organized on a regular grid, and are notorious for missing individual high points and low points due to the fact that, on average, the extremes are not likely to fall on a recorded data point.³

² At 30 meters HAAT or below, distance to contour is calculated using the 30 meter HAAT figure.

³ Software used to determine a spot elevation from a terrain database will interpolate between the four adjacent data points included in the database. For a desired location which happens to be "in the middle", the discrepancy can be considerable. Particularly so if a low-resolution terrain database (such as the USGS 30-second terrain database) is used.

Consequently, adoption of the proposed Note 2 could result in “database shopping” or applicants using the most beneficial reading of the 7.5 minute topographic map to game the system to their advantage.

New Areas of Grandfathered Overlap Will Likely be Created

Adoption of Calvary’s proposal is likely to result in the creation of new areas of grandfathered overlap. Many of the licensed stations and vacant allotments whose interfering contours will be changed by this proposal have already been the subject of §73.215 short-spacing by other stations.

It is clear from even Calvary’s filing that in many cases, the new interfering contour will extend farther in some directions than does the current “maximum facilities” interfering contour. This very effect is clearly depicted in Calvary’s Figure 2 (KUZZ), Figure 3 (KNCQ), and Figure 4 (KHTO).

Those are by no means isolated examples. We could produce dozens (and perhaps hundreds) of examples given enough time. For the purposes of these comments, we have documented five additional examples, which are included as Figures 1-5. These examples were found simply by a targeted review of Class B stations in California between channels 221 and 235.⁴ A complete analysis of non-§73.215 stations would find many, many more examples. Given that a significant percentage of these stations have been short-spaced by other stations already, it is very likely that this rule change will create new overlap to some §73.215 stations, where no such overlap currently exists.

Furthermore, a “victim” station which is subject to Calvary’s proposed Note 2 would still be entitled to reduce its antenna height at its licensed transmitter site without having to adopt §73.215 status itself. This, too, could create new overlap with a §73.215 station authorized utilizing Note 2.

By way of example, consider the following:

⁴ The analysis was only limited to this geographic area and these channels due to time constraints.

Station A is a fully-spaced station on Channel 250C2. It is authorized to operate with 12.6 kW ERP at 300 meters HAAT, from an antenna which is located 120 meters above ground.

Station B files an application to modify its facilities on Channel 250A at a site which is short-spaced with Station A. Calvary's proposed Note 2 would pertain, since §73.215(b)(2)(ii) would otherwise require that Station A's contours be calculated assuming 50 kW ERP at 150 meters HAAT, placing Station A's antenna 30 meters below ground. The distance to Station A's "Note.2" 40 dBu interfering contour is 125.4 km, and the Station B 60 dBu contour is just tangent to that.

After Station B is licensed, Station A files an application to modify its facilities, at its current transmitter site but with a reduction in antenna height to 20 meters above ground. The new Station A facility will operate with 28.3 kW ERP at 200 meters HAAT, which produces a 40 dBu interfering contour at 131.3 kilometers.

ERP	HAAT	Distance to 60 dBu F(50,50)	Distance to 40 dBu F(50,10)
12.6 kW	300 m	52.2 km	125.4 km
28.3 kW	200 m	52.2 km	131.4 km

Since Station A is not changing its transmitter site, it is not required to adopt §73.215 status with respect to Station B. But this permissible change by Station B has nevertheless created 6 kilometers of new overlap with Station A.

Similar grandfathered overlap could accrue to vacant allotments, given Calvary's proposal that one assume that the allotment's antenna is located 61 meters above ground.

Accordingly, were the Commission to adopt Calvary's Note 2, §73.215 would need to include an additional provision to account for "pre-2011" grandfathered contour overlap. (Although as illustrated above, this overlap could be created at any time.) This may place additional demands on Audio Division staff, as it will take time to research and verify the origins of these instances of grandfathered overlap.

Anomalous Protected and Interfering Contours Will be Created

In attempting to eliminate one "anomaly" for its own benefit, Calvary's proposal will create a new anomaly for many non-§73.215 stations. This new anomaly arises from the fact that the proposed Note 2 does not affect the calculation of protected contours. Consequently, at some azimuths a

station's protected contour will extend farther than the station's first-adjacent-channel interfering contour.⁵

This would be particularly true for Class B stations, which are protected to their 54 dBu F(50,50) contour, and which have a first-adjacent-channel interfering contour of 54 dBu F(50,10), 51 dBu F(50,10), or 48 dBu F(50,10) depending on the class of the other station. The attached Figures 1-5 illustrate this scenario for five stations in California.⁶ This new anomaly can be expected to generate confusion among both applicants and Commission staff.

Conclusions

While Calvary argues that adoption of their proposed Note 2 would be "simple and straightforward", and would eliminate an existing anomaly in the application of the §73.215 contour protection rules, the result would be anything but simple.

The proposal would affect hundreds of stations, invites bias, has the potential to create extensive grandfathered overlap situations, and will create anomalous protected and interfering contours in first-adjacent-channel situations.

In evaluating Calvary's proposal, therefore, the Commission must consider the confusion and complications which the proposal would create.

⁵ This may even be the case for some stations' cochannel interfering contour, although no concrete examples have been identified as of yet.

⁶ These are the same five stations (all Class B stations in California between Channels 212 and 235) for which the maps demonstrate that the "Note 2" interfering contour extends beyond the "maximum facilities" interfering contour in some directions. As noted above, the analysis was stopped there due to time constraints. There would be many, many additional examples found in a comprehensive review of licensed FM stations in the non-reserved band.

Statement of Engineer

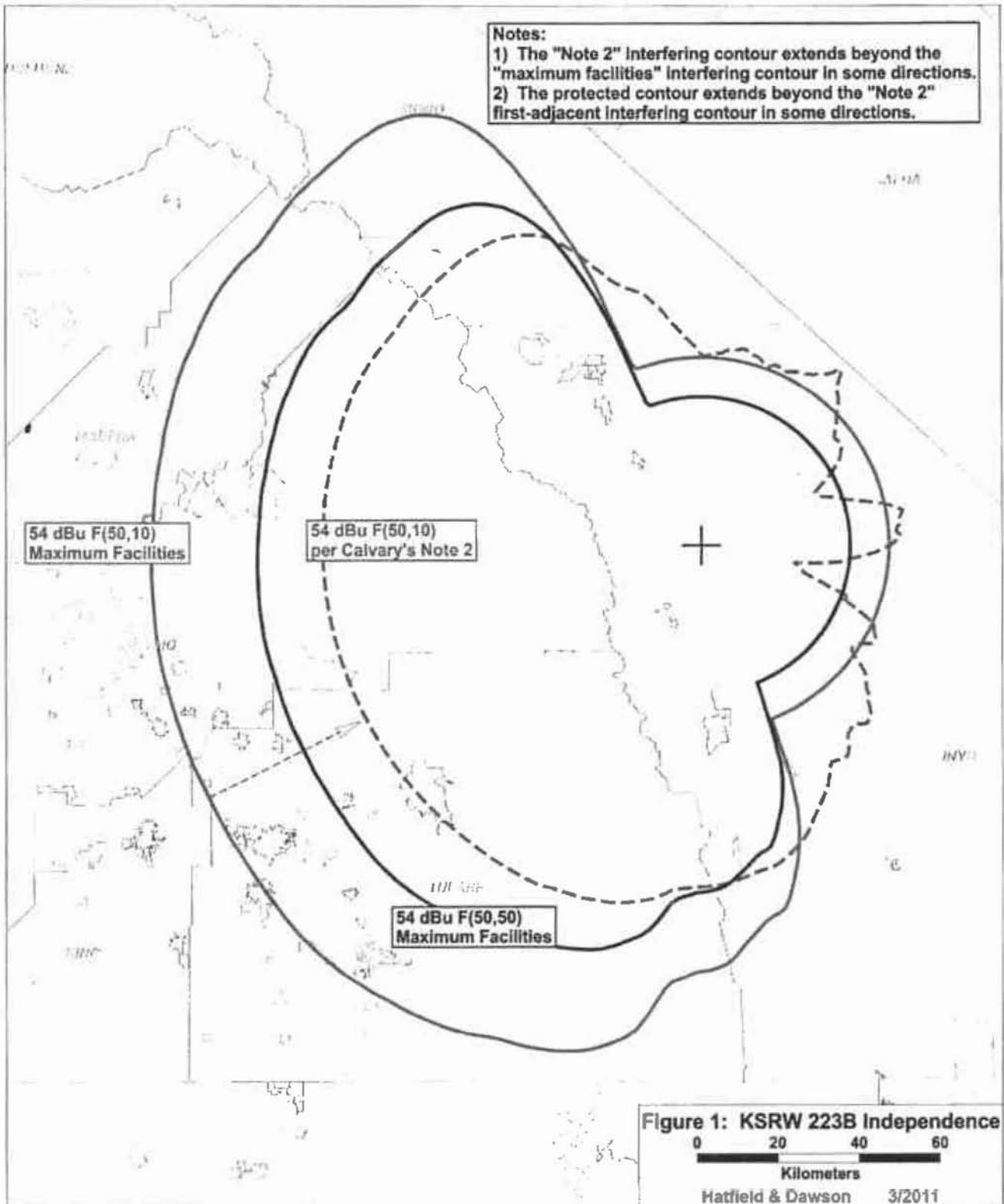
This Engineering Statement has been prepared on behalf of Owens One Company, Inc., in support of comments filed regarding RM-11620, and has been prepared by the undersigned or under my direct supervision. All statements are true and correct to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am a partner in the firm of Hatfield & Dawson Consulting Engineers, and am registered as a Professional Engineer in the States of Washington and Colorado.

March 16, 2011



Erik C. Swanson, P.E.

Hatfield & Dawson Consulting Engineers



Notes:
1) The "Note 2" interfering contour extends beyond the "maximum facilities" interfering contour in some directions.
2) The protected contour extends beyond the "Note 2" first-adjacent interfering contour in some directions.

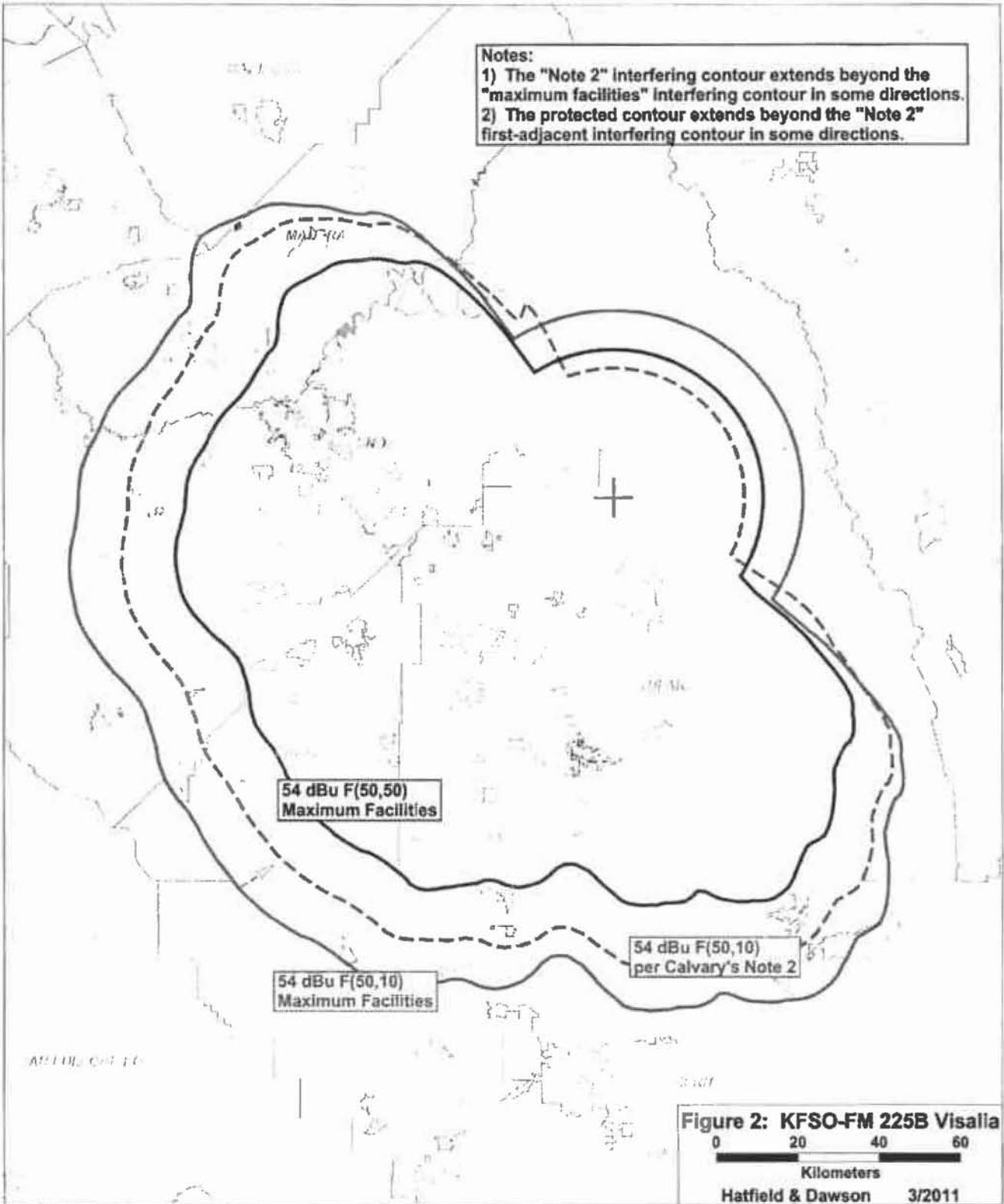


Figure 2: KFSO-FM 225B Visalia

0 20 40 60

Kilometers

Hatfield & Dawson 3/2011

Notes:
1) The "Note 2" interfering contour extends beyond the "maximum facilities" interfering contour in some directions.
2) The protected contour extends beyond the "Note 2" first-adjacent interfering contour in some directions.

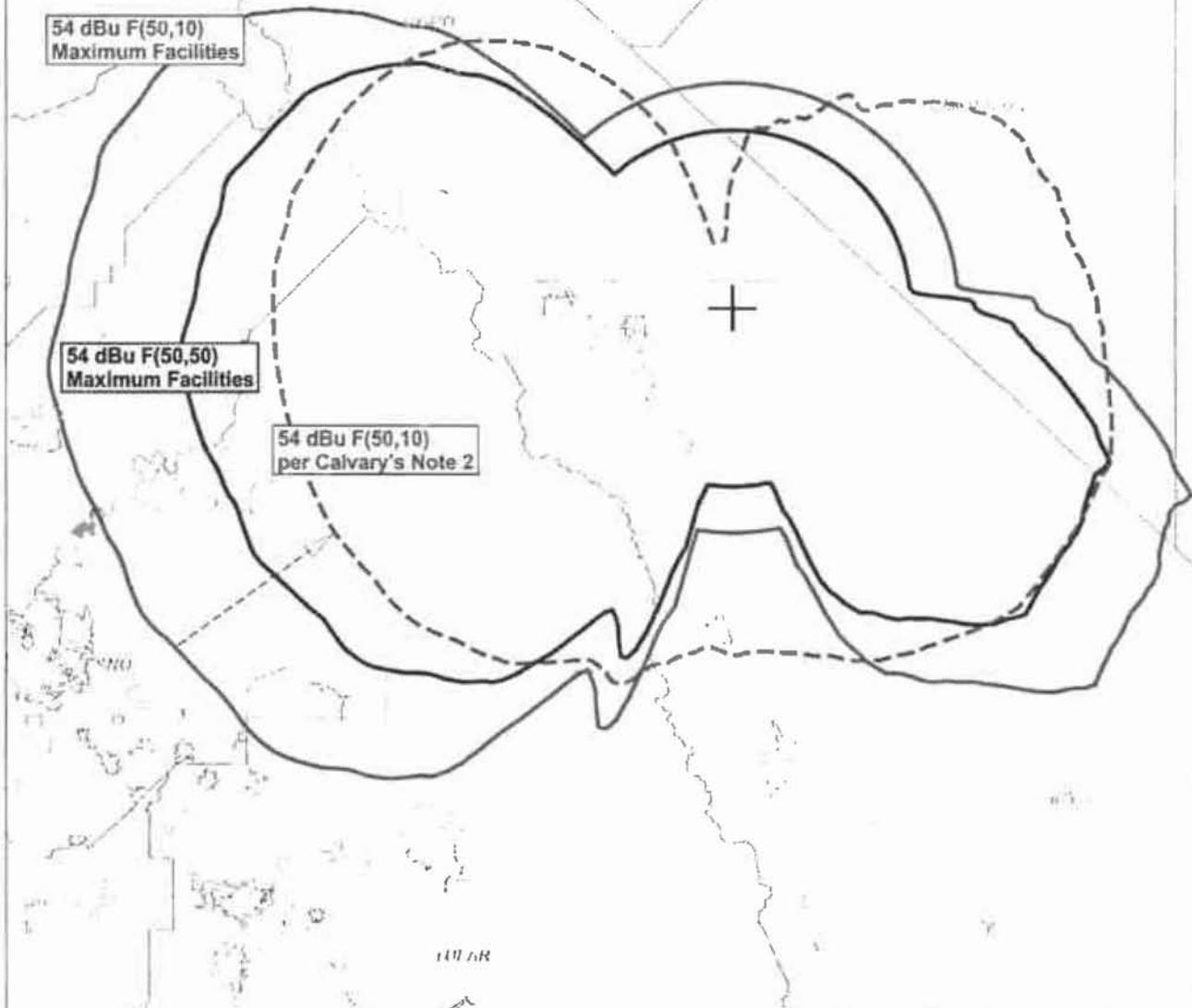
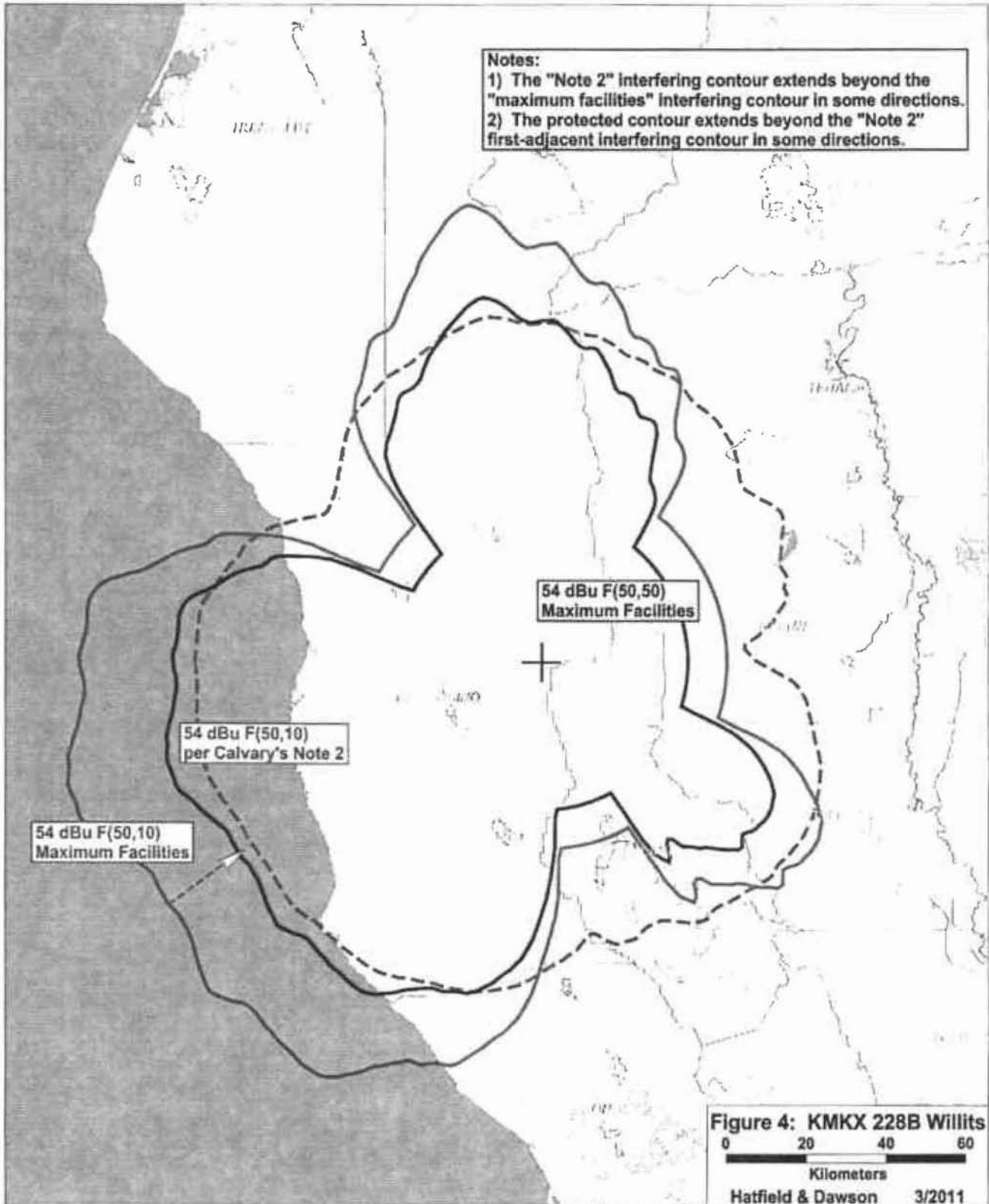
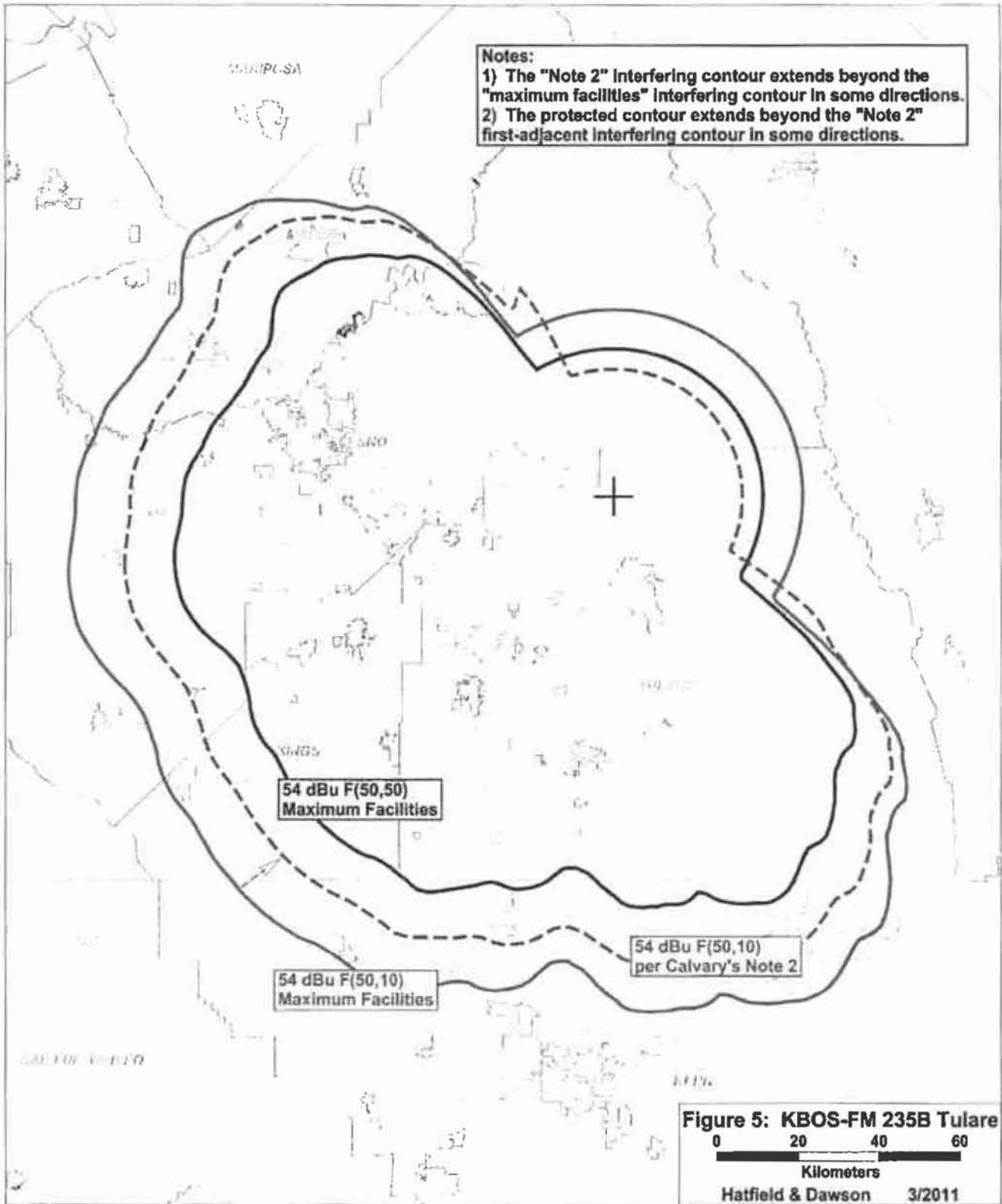


Figure 3: KRHV 227B Big Pine
0 20 40 60
Kilometers
Hatfield & Dawson 3/2011

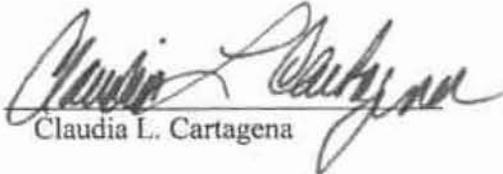




Certificate of Service

I, Claudia L. Cartagena, a secretary in the law firm of Wiley Rein LLP, do hereby certify that I have on this 17th day of March, 2011, caused a copy of the foregoing "Comments of Owens One Company, Inc." to be served by First Class U.S. Mail, postage prepaid, upon the following:

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