

**LMS application # 129982**  
**Amendment to Minor Modification**  
**June 2022**

Included with this amendment:

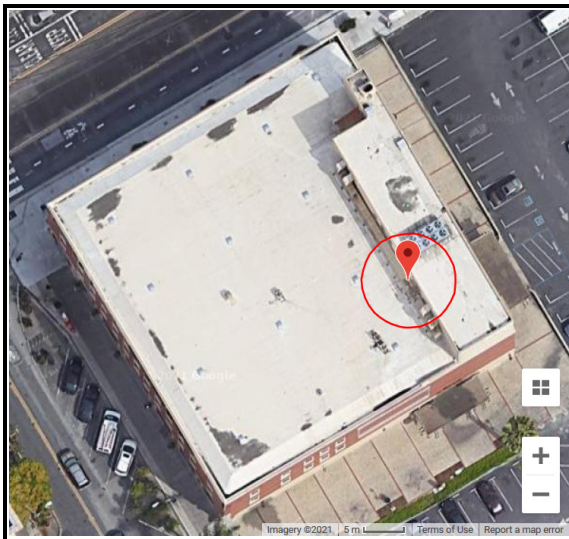
- Updated TOWAIR exhibit to reflect overall tower height over building structure.
- Notes on short-spaced condition introduced by KREV (FM) in respect to § 73.807(a)(1).
- Second adjacent channel waiver exhibit with standard depression angle calculations demonstrating no interference to any population.
- Supplemental exhibit with AM calculations confirming exclusion from 47 CFR § 1.30002

COORDINATES (NAD 83)	37 19 53.2 N, 121 53 11.2 W
ELEVATION	28.1 meters
BUILDING HEIGHT	24.4 meters
COR AGL	28.5 meters (4.1 m over building)
OVERALL TOWER AGL	29.4 meters (5 m over building)
CHANNEL	224 / 92.7 MHz
POWER	100 watts ERP

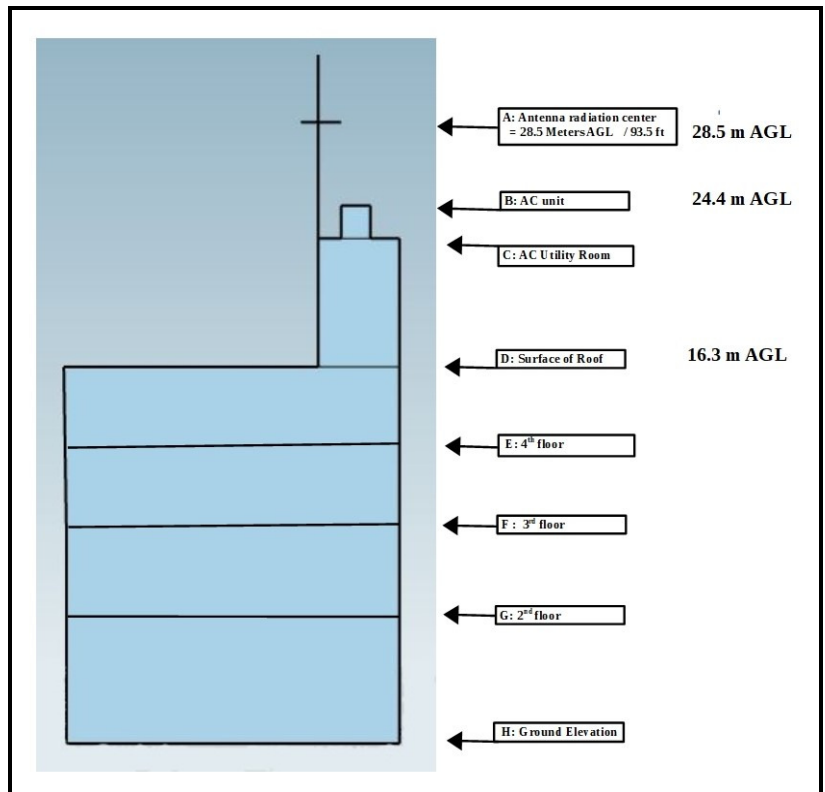
Radiation center of antenna at 4.1 m over total building height results in COR at 28.5 m AGL. Total height of the building structure at 24.4 meters above ground level includes AC unit/ elevator housing structure (8.07 m) extruding above surface of the roofline.

Antenna will be mounted on an existing pole extending 5 meters above building height, bringing the overall structure height with pole to 29.4 meters AGL.

**Antenna with U/D interference radius**



**Antenna and building elevations**



## **Notes on existing short-spacing to KREV**

The original Form 318 application for KCXU-LP was filed on November 13, 2013. Pursuant to the Commission Rules at 47 CFR § 73.807(a)(1), the application proposal, BNPL-20131113BQF, was fully-spaced in respect to all first-adjacent and co-channel stations. Per Public Notice 13-385 released June 17, 2013 and § 73.807 of the Rules, KCXU-LP was only required to protect applications filed before June 17, 2013.

KREV appeared in the Public Notice Report No. 28117 ("Broadcast Applications") on November 18, 2013, and introduced short-spacing to the application of KCXU-LP and other pending Low Power FMs.

(see [https://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2013/db1118/DOC-324189A2.txt](https://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db1118/DOC-324189A2.txt) )

KCXU-LP was granted its' first license for 50 watts ERP on April 17, 2018 (see Form 319 BLL-20180413AAT), and subsequently granted its license for 100 watts ERP on January 29, 2019 (Form 319 BLL-20181219AAC). Whereas the Commission's Rules allow for Translators and Full-Power FMs to introduce short-spacing in respect to other facilities, Low Power FMs are subject to provisions of 47 CFR § 73.809.

In the time that passed since filing its first license application over three years ago, KCXU has received no complaints of interference to any adjacent or co-channel stations. In March 2019, KCXU-LP was also visited by an FCC Field Enforcement agent inspecting the facility, equipment settings, and monitored for interference. KCXU-LP was found to be in full compliance.

KCXU-LP's current authorization (BLL-20190711AAW) is grandfathered at 61 kilometers from KREV. The new proposed location is rounded to a distance of 60 km, thereby decreasing short-spacing.

## **Second adjacent waiver requested pursuant to Section 73.807(e)(1) with respect to KSJO**

The attached D/U Ratio Study dataset calculations exported from V-Soft Probe 4 broadcast engineering software shows the estimated signal strength for KSJO at 87.67 dBuV/m FCC (f(50,50), and at 95.79 dBuV/m using Longley Rice terrain-sensitive methodology.

The use Longley-Rice methodology previously approved for KCXU-LP applications (BMPL-20190626AAK and BLL-20181219AAC) is consistent with 47 CFR § 73.807 (e)(1) which allows for "*terrain-sensitive propagation models, that its proposed operations will not result in interference to any authorized radio service.*"

VSoft Probe 4 software employs calculations based on Tech Note 101 consistent with OET procedures for determining 70 dBu Longley-Rice contours of FM facilities.

KCXU-LP has received no complaints of second-adjacent interference at its' current location. The station was also inspected and monitored by FCC Field Enforcement on March 29, 2019, and found to be in compliance.

Calculations for the new site show as posing even less interference than KCXU-LP's current LIC authorization.

With an additional 40 dBu, KSJO is protected to 128 dBuV/m with FCC (f)50,50 calculations, and at 135.79 dBuV/m by Longley Rice, calculations. By either methodology, whether FCC contour or Longley-Rice, a worst-case interference radius extends toward the horizon not more than 29 meters.

Radiation center of antenna extends 4.1 m over total building height, resulting in COR at 28.5 m AGL. An HVAC machine room / elevator housing structure (8.07 m) also extrudes above surface of the roofline, bringing the total height of the building structure to 24.4 m AGL.

Using a single-bay Shively 6812 antenna, depression angles fall quickly below the horizon. Per the attached elevation field pattern from the manufacturer, worst-case radius of interference extends no more than 5.76 meters below the radiation center per the Longley-Rice calculations. No population will receive interference under the desired/undesired ratio method.

## Channel Study

REFERENCE  
37 19 53.41 N.  
121 53 07.36 W.

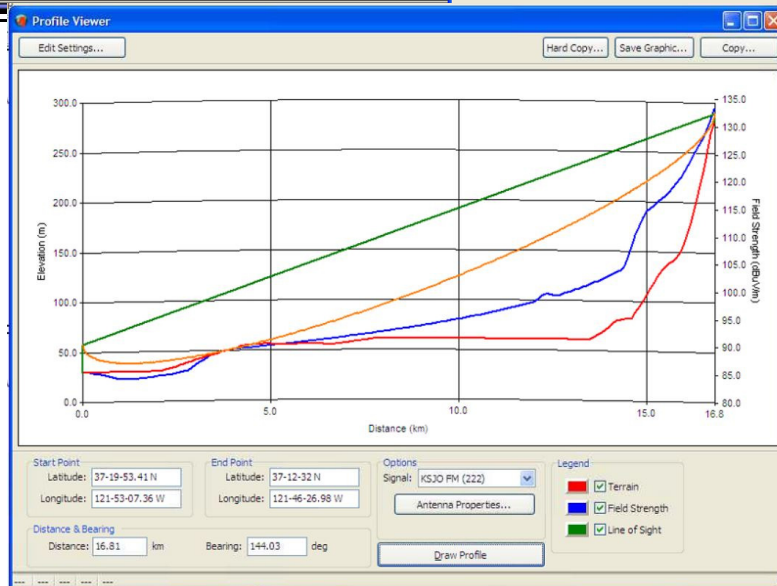
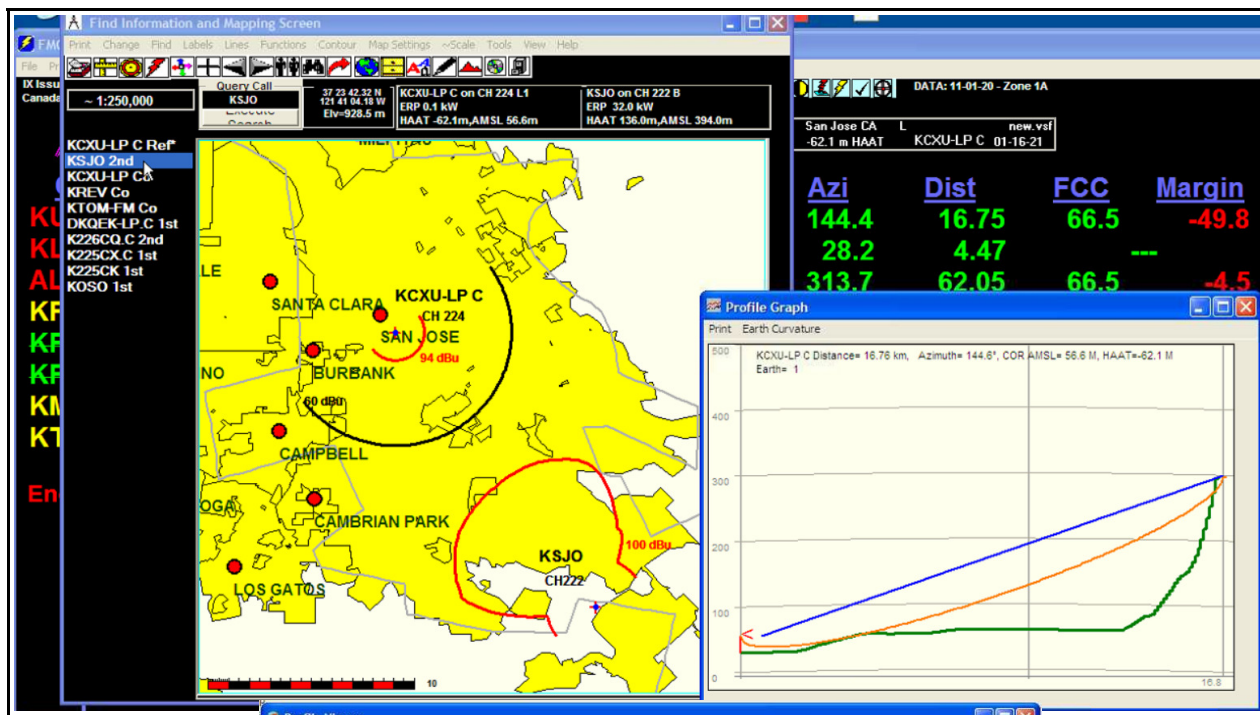
CLASS = L1  
Current Spacings to 2nd Adj.  
Channel 224 - 92.7 MHz

DISPLAY DATES  
DATA 06-08-22  
SEARCH 06-08-22

Call	Channel	Location	Azi	Dist	FCC	Margin
KSJO	LIC 222B	San Jose	CA 144.4	16.75	66.5	-49.8
KCXU-LP	LIC 224L1	San Jose	CA 28.2	4.47	23.5	-19.0
KREV	LIC-Z 224A	Alameda	CA 313.7	62.05	66.5	-4.5
KREV	APP-Z 224A	Alameda	CA 313.7	62.05	66.5	-4.5
KTOM-FM	LIC 224B1	Marina	CA 174.3	86.87	86.5	0.37
K226CQ	CP -D 226D	Gilmore	CA 162.3	31.89	20.5	11.4
K225CX	CP -D 225D	Palo Alto	CA 307.7	27.89	14.5	13.4
K225CK	LIC-D 225D	Union City	CA 342.4	29.51	14.5	15.0
KOSO	LIC 225A	Patterson	CA 67.3	80.39	55.5	24.9

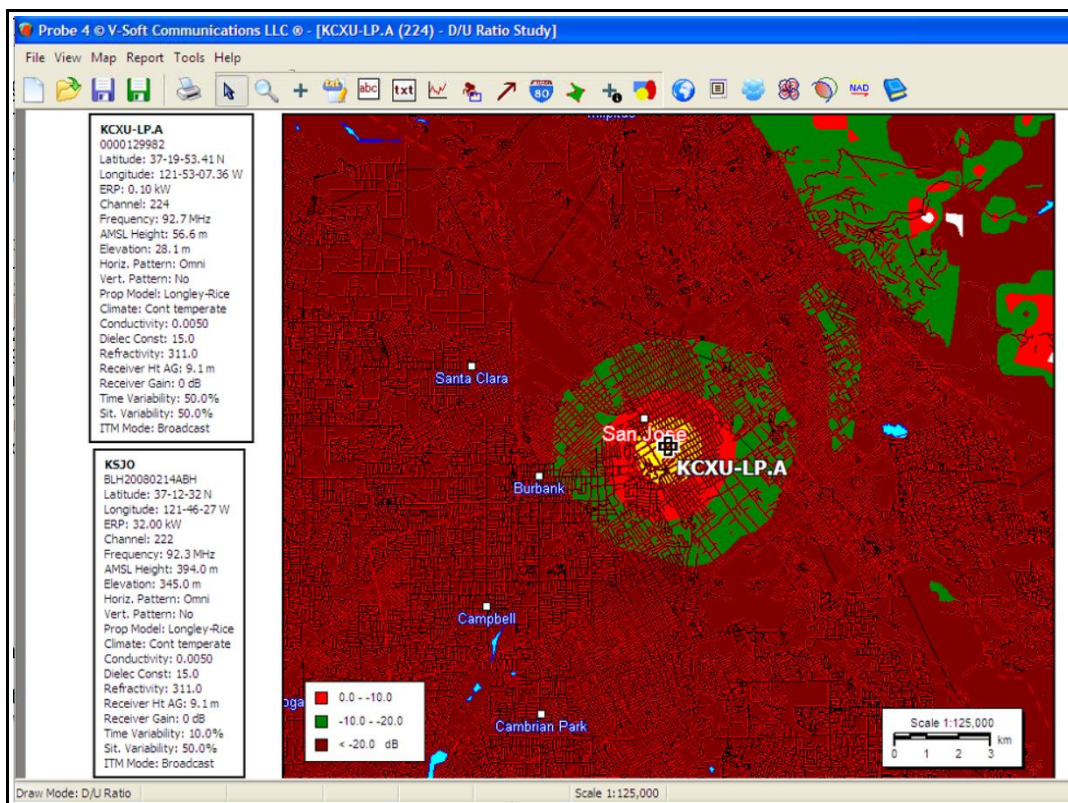
All separation margins include rounding

### Elevation Profile - KSJO (FM) vs KCXU-LP

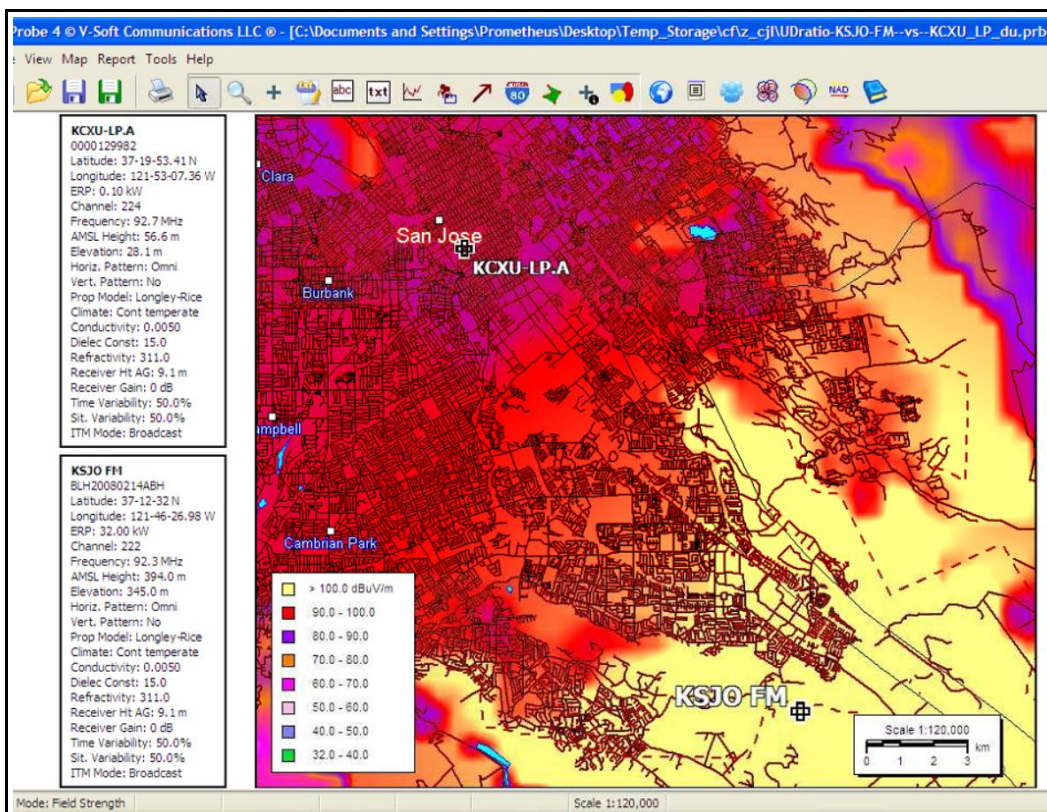




## D/U Ratio Study KSJO (FM) at KCXU-LP



## Longley Rice Signal Coverage: KSJO (FM)



Calculations for Engineering Studies  
Export from V-Soft Probe 4 software

**KSJO D/U ratio study at reference point**

**FCC (f) 50,50 calculations**

Study Information:

D/U Ratio Study

Signal Resolution: 0.5 km

Study Date: 4/21/2021

Land Cover was not considered in this study.

Primary Terrain: V-Soft 30 Second US Database

Secondary Terrain: V-Soft 3 Second Alaska Terrain

Coordinate System: NAD27

Transmitters:

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Transmitter Information:

**Call Letters: KSJO**

File Number: BLH20080214ABH

Latitude: 37-12-32 N

Longitude: 121-46-27 W

ERP: 32.00 kW

Channel: 222

Frequency: 92.3 MHz

AMSL Height: 394.0 m

Elevation: 345.0 m

Horiz. Antenna Pattern: Omni

Vert. Elevation Pattern: No

**Propagation Model: FCC Model**

Location Variability: 50.0%

Time Variability: 10.0%

HAAT Method: FCC

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Transmitter Information:

Call Letters: KCXU-LP.A

File Number: 0000129982

Latitude: 37-19-53.41 N

Longitude: 121-53-07.36 W

ERP: 0.10 kW

Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 56.6 m  
Elevation: 28.1 m  
Horiz. Antenna Pattern: Omni  
Vert. Elevation Pattern: No  
Propagation Model: FCC Model  
Location Variability: 50.0%  
Time Variability: 50.0%  
HAAT Method: FCC

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#### Point Information Report

Latitude: 37-19-53.41 N  
Longitude: 121-53-07.36 W

**Signal Strength: 87.671 dBuV/m**  
Elevation: 30.0 m

Distance From Transmitter: 16.807 km  
Azimuth From Transmitter: 324.1 degrees

**Call Letters: KSJO**  
File Number: BLH20080214ABH  
Latitude: 37-12-32 N  
Longitude: 121-46-27 W  
ERP: 32.00 kW  
Channel: 222  
Frequency: 92.3 MHz  
AMSL Height: 394.0 m  
Elevation: 345.0 m  
Horiz. Antenna Pattern: Omni  
Vert. Elevation Pattern: No

**KSJO D/U ratio study at reference point**

**Longley-Rice calculations**

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Point Information Report

Latitude: 37-19-53.41 N

Longitude: 121-53-07.36 W

**Signal Strength: 95.792 dBuV/m**

Elevation: 30.0 m

Distance From Transmitter: 16.807 km

Azimuth From Transmitter: 324.1 degrees

**Call Letters: KSJO**

File Number: BLH20080214ABH

Latitude: 37-12-32 N

Longitude: 121-46-27 W

ERP: 32.00 kW

Channel: 222

Frequency: 92.3 MHz

AMSL Height: 394.0 m

Elevation: 345.0 m

Horiz. Antenna Pattern: Omni

Vert. Elevation Pattern: No

-----  
Study Information:

D/U Ratio Study

Signal Resolution: 0.5 km

Study Date: 4/21/2021

Land Cover was not considered in this study.

Primary Terrain: V-Soft 30 Second US Database

Secondary Terrain: V-Soft 3 Second Alaska Terrain

Coordinate System: NAD27

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Transmitter Information:

**Call Letters: KSJO**

File Number: BLH20080214ABH

Latitude: 37-12-32 N

Longitude: 121-46-27 W

ERP: 32.00 kW

Channel: 222

Frequency: 92.3 MHz

AMSL Height: 394.0 m

Elevation: 345.0 m

Horiz. Antenna Pattern: Omni

Vert. Elevation Pattern: No

**Propagation Model: Longley-Rice**

Climate: Continental temperate

Conductivity: 0.0050

Dielectric Constant: 15.0

Refractivity: 311.0

Receiver Height AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 10.0%

Situation Variability: 50.0%

ITM Mode: Broadcast  
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Transmitter Information:

Call Letters: KCXU-LP.A

File Number: 0000129982

Latitude: 37-19-53.41 N

Longitude: 121-53-07.36 W

ERP: 0.10 kW

Channel: 224

Frequency: 92.7 MHz

AMSL Height: 56.6 m

Elevation: 28.1 m

Horiz. Antenna Pattern: Omni

Vert. Elevation Pattern: No

Propagation Model: Longley-Rice

Climate: Continental temperate

Conductivity: 0.0050

Dielectric Constant: 15.0

Refractivity: 311.0

Receiver Height AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 50.0%

Situation Variability: 50.0%

ITM Mode: Broadcast  
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## Depression angle calculations

Shively 6812 – 1 Bay

Power – 100 w

Height –28.5 m

Interfering Contour – 135.79 dBu

depression angle below horizon	relative field	db from relative	ERP	angular distance to contour	vertical distance	horizontal distance	clearance above ground
0	1.000	0.00	100.00	11.369	0.000	11.369	28.500
5	0.996	-0.03	99.20	11.323	0.987	11.280	27.513
10	0.985	-0.13	97.02	11.198	1.945	11.028	26.555
15	0.967	-0.29	93.51	10.994	2.845	10.619	25.655
20	0.942	-0.52	88.74	10.709	3.663	10.064	24.837
25	0.910	-0.82	82.81	10.346	4.372	9.376	24.128
30	0.871	-1.20	75.86	9.902	4.951	8.576	23.549
35	0.826	-1.66	68.23	9.391	5.386	7.692	23.114
40	0.774	-2.23	59.91	8.800	5.656	6.741	22.844
45	0.717	-2.89	51.41	8.151	5.764	5.764	22.736
50	0.654	-3.69	42.77	7.435	5.696	4.779	22.804
55	0.586	-4.64	34.34	6.662	5.457	3.821	23.043
60	0.514	-5.78	26.42	5.844	5.061	2.922	23.439
65	0.437	-7.19	19.10	4.968	4.503	2.100	23.997
70	0.357	-8.95	12.74	4.059	3.814	1.388	24.686
75	0.273	-11.28	7.45	3.104	2.998	0.803	25.502
80	0.186	-14.61	3.46	2.115	2.082	0.367	26.418
85	0.096	-20.35	0.92	1.091	1.087	0.095	27.413
90	0.001	-60.00	0.00	0.011	0.011	0.000	28.489

## Supplemental exhibit - Compliance with 47 CFR § 1.30002

Exhibit examines short antenna structure (5 meters) on an existing building (24.4 meters).

**FCC 13-115**, Third Report and Order and Second Order on Reconsideration (MM Docket No. 93-177 \* ) released August 16, 2013, states in part (page 6):

*"We therefore revise the rule to exclude most antenna structures atop buildings, except where the antenna structure alone would be a significant re-radiator as defined in Section 1.30002(a) or (b)."*

Page 6 of the Third R&O further states: *"[It] is impossible to detune a building and similarly, impossible to detune the combination of a building and a tower."*

Calculations are provided for antenna structure in respect to AM facilities KVVN 1430 and KLIV 1590 (per 47 CFR § 1.30000, MM Docket No. 93-177, & FCC 13-115A1), demonstrating the proposed antenna structure is excluded from further analysis and special conditions:

Proponent structure in relation to **KVVN 1430 AM**, Facility ID#: 28438:

**- At height of 5.00 meters, structure on building calculates to 8.58 electrical degrees to KVVN AM.**

With KVVN AM tower distanced at 1.7 km and 21m AGL, height and location of proposed structure falls considerably short of 36 electrical degrees from KVVN, which is excluded from 47 CFR 1.30002.

Calculations per **§ 1.30001** for proposed facility in respect to KVVN AM 1430 kHz are as follows:

- Whereas wavelength of an AM frequency at 1000 kHz, or 1 MHz = 300 meters, KVVN 1430 kHz wavelength is 209.79 meters. (Calculation:  $300 \text{ m} / 1.43 \text{ MHz} = 209.79 \text{ m}$ .)
- Height of proposed structure at 5 meters calculates at 8.58 electrical degrees to KVVN AM:  
[(Structure height in m) / (AM wavelength in m)] x 360 degrees = Height of structure in electrical degrees

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Proponent structure in relation to **KLIV 1590 AM**, Facility ID#: 19531:

**- At height of 5.00 meters, structure on building calculates to 9.54 electrical degrees to KLIV AM.**

With KLIV AM tower distanced at 2.5 km and 18.9 m AGL, height and location of proposed structure falls considerably short of 36 electrical degrees from KLIV, which is excluded from 47 CFR 1.30002.

Calculations per **§ 1.30001** for proposed facility in respect to KLIV 1590 kHz are as follows:

- Whereas wavelength of an AM frequency at 1000 kHz, or 1 MHz = 300 meters, KLIV 1590 kHz wavelength is 188.68 meters. (Calculation:  $300 \text{ m} / 1.59 \text{ MHz} = 188.68 \text{ m}$ .)
- Height of proposed structure at 5 meters calculates at 9.54 electrical degrees to KLIV AM:  
[(Structure height in m) / (AM wavelength in m)] x 360 degrees = Height of structure in electrical degrees

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\* See **FCC 13-115**, Third Report and Order and Second Order on Reconsideration  
**MM Docket No. 93-177** *An Inquiry Into the Commission's Policies and Rules Regarding*  
*AM Radio Service Directional Antenna Performance Verification*, released August 16, 2013.

## Antenna support and building structure elevations

- Antenna pole extrudes no more than 5 meters above pre-existing AC housing and utility structure.  
Height of building with AC/utility structure is 24.4 meters AGL.

