

**Minor Modification - December 2020**

Minor move by 4.6 km. Permanent facility will replace temp authorization (BSTA-20200709AAB) with a single bay non-directional antenna at 100 w ERP.

Second adjacent channel waiver requested pursuant to Section 73.807(e)(1) with respect to KSJO (FM). Waiver exhibit is attached to engineering study.

Location does not increase short-spacing introduced by BLH-20140110AAC (KREV FM), grandfathered at 61 km. New location is distanced by 61.93 km from KREV.

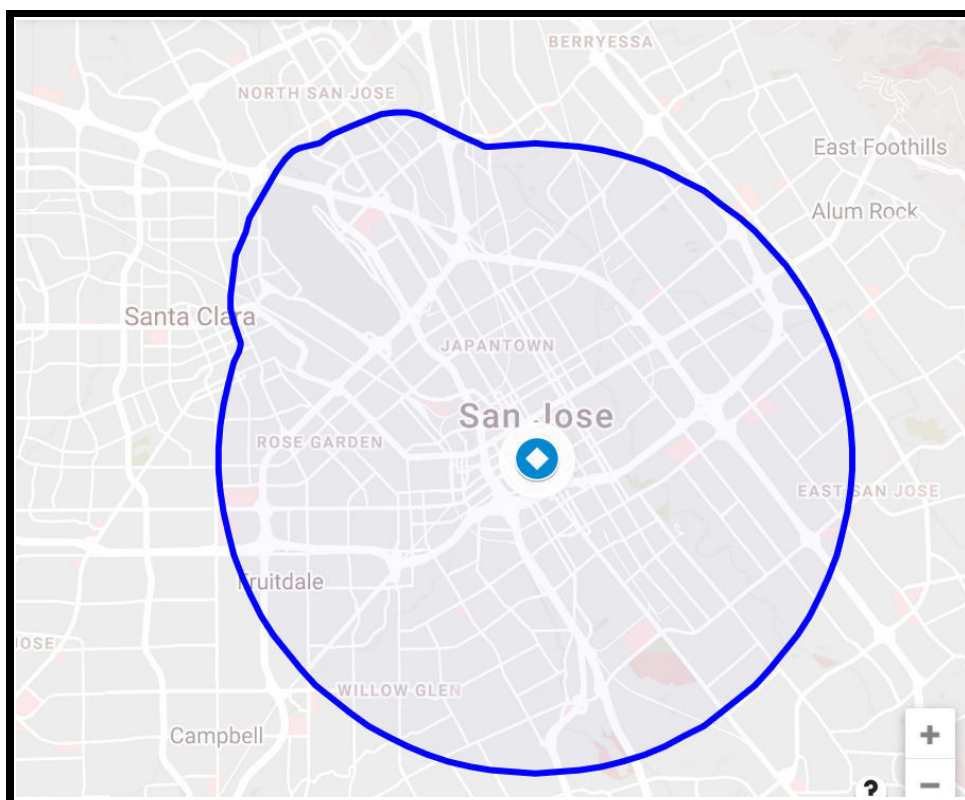
Height of antenna extends 4.57 meters over AC unit & maintenance structure over on the roof.

Structure clears FAA TOWAIR calculations.

FM Model calculations demonstrate no population will be subject to harmful RF exposure.

**Engineering Parameters**

Coordinates	37 19 53.2 N, 121 53 11.2 W (NAD 83)
Elevation	28.1 meters
Building height	23.9 meters
AMSL - COR	56.6 meters
AGL	28.5 meters
HAAT	- 51 meters (8-radial 1km GLOBE Terrain)
Channel	224 / 92.7 MHz
Power ERP	100 watts
Antenna system:	Non-Directional

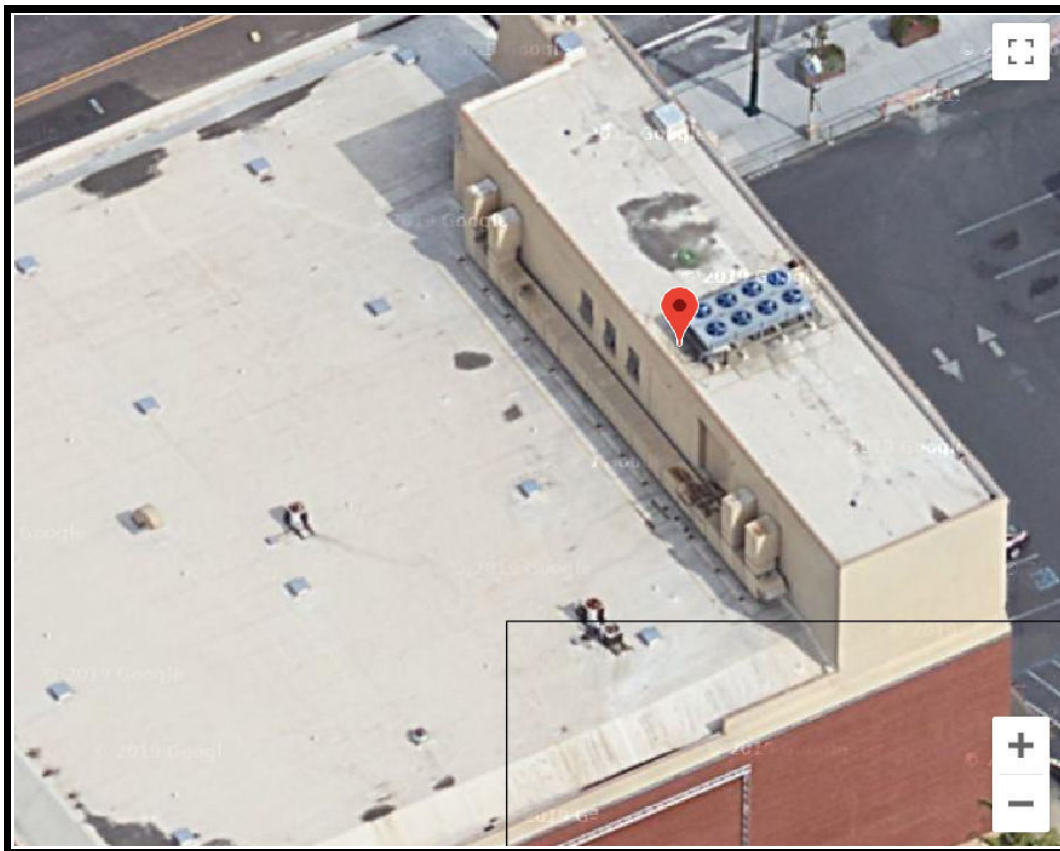


## **Second Adjacent Exhibit & Waiver Request**

Per the attached calculations using FCC 30 Meter Terrain, signal strength at proposed site for KSJO is calculated to 92.13 dBuV/m. With additional 40 dBu, KSJO is protected to 132.13 dBu, producing a worst case interference of 6.8 meters radius at 6.76 meters below center of radiation.

No population will be subject to interference in accordance to the undesired-to-desired ratio method. Radiation center is placed 4.57 meters over AC unit & maintenance structure on rooftop. Any residual interference signal will remain sufficiently contained above the upper most occupied floor inside the building by more than 11 meters.

U/D printout & Depression angle calculations attached below.



## KSJO signal calculations at reference point

### Point Information Report

Latitude: 37-19-53.20 N

Longitude: 121-53-11.20 W

Signal Strength: 92.13 dBuV/m

Elevation: 30.0 m

Distance From Transmitter: 16.807 km

Azimuth From Transmitter: 324.09 degrees

Call Letters: KSJO

File Number: BLH20080214ABH

Latitude: 37-12-31.80 N

Longitude: 121-46-30.80 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

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### Study Information:

#### D/U Ratio Study

Signal Resolution: 0.1 km

Study Date: 11/18/2020

Land Cover was not considered in this study.

Primary Terrain: FCC 30 Meter Terrain

Secondary Terrain: GLOBE 30 Second World Database

Coordinate System: NAD83/WGS84

### Transmitters:

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Transmitter Information:

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Transmitter Information:

Call Letters: KCXU-LP  
File Number: BLL20190711AAW  
Latitude: 37-19-53.20 N  
Longitude: 121-53-11.20 W  
ERP: 0.10 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 56.6 m  
Elevation: 28.14 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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Transmitter Information:

Call Letters: KSJO  
File Number: BLH20080214ABH  
Latitude: 37-12-31.80 N  
Longitude: 121-46-30.80 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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## **Second Adjacent Exhibit - Depression Angle Calculations**

Single-bay Non-Directional antenna (Norwalk NWE-34)

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	17.347	0.000	17.347	28.500
5	0.989	-0.10	97.81	17.156	1.495	17.091	27.005
10	0.996	-0.03	99.20	17.277	3.000	17.015	25.500
15	0.931	-0.62	86.68	16.150	4.180	15.600	24.320
20	0.885	-1.06	78.32	15.352	5.251	14.426	23.249
25	0.829	-1.63	68.72	14.380	6.077	13.033	22.423
30	0.766	-2.32	58.68	13.288	6.644	11.507	21.856
35	0.697	-3.14	48.58	12.091	6.935	9.904	21.565
40	0.625	-4.08	39.06	10.842	6.969	8.305	21.531
45	0.551	-5.18	30.36	9.558	6.759	6.759	21.741
50	0.477	-6.43	22.75	8.274	6.339	5.319	22.161
55	0.406	-7.83	16.48	7.043	5.769	4.040	22.731
60	0.338	-9.42	11.42	5.863	5.078	2.932	23.422
65	0.275	-11.21	7.56	4.770	4.323	2.016	24.177
70	0.216	-13.31	4.67	3.747	3.521	1.282	24.979
75	0.161	-15.86	2.59	2.793	2.698	0.723	25.802
80	0.107	-19.41	1.14	1.856	1.828	0.322	26.672
85	0.051	-25.85	0.26	0.885	0.881	0.077	27.619
90	0.001	-60.00	0.00	0.017	0.017	0.000	28.483

## Antenna Height Above Average Terrain Calculations -- Results

### Input Data

Latitude **37° 19' 53.41" North**

Longitude **121° 53' 7.36" West (NAD 27)**

These coordinates convert to NAD 83 coordinates of  
37° 19' 53.20", North, 121° 53' 11.20" West (NAD 83).

Height of antenna radiation center above mean sea level: **56.6 meters** AMSL

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

### Results

Calculated HAAT = **-51 meters**


Antenna Height Above Average Terrain calculated  
using 1 km **GLOBE terrain data**

### Individual "Radial HAAT" Values, in meters

0°	19.0 m
45°	-238.1 m
90°	-169.1 m
135°	4.8 m
180°	-48.4 m
225°	-37.1 m
270°	7.0 m
315°	52.0 m


Print Results?

New Calculation?



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Antenna Structure Registration

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[FCC Site Map](#)

## TOWAIR Determination Results

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### \*\*\* NOTICE \*\*\*

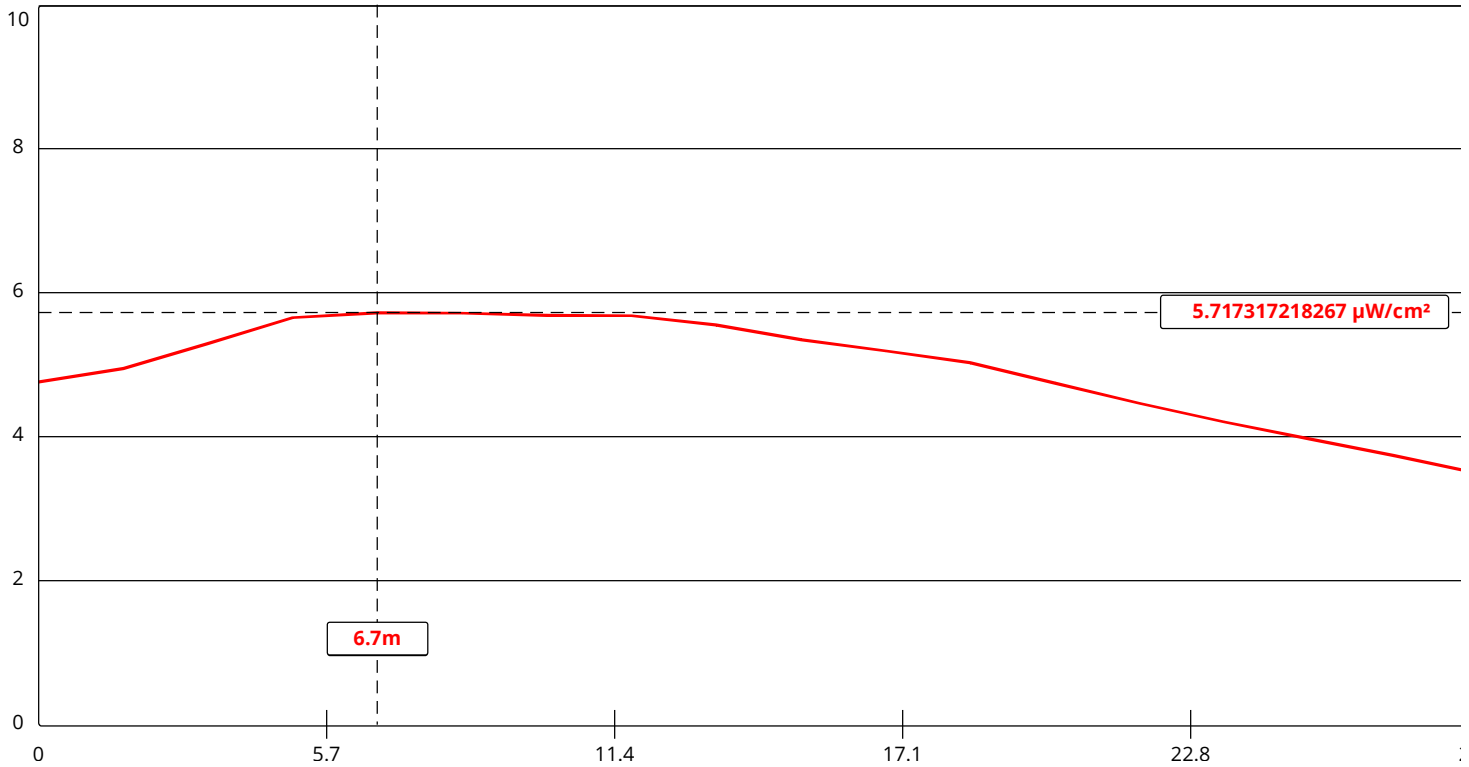
TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results	
Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.	
Your Specifications	
NAD83 Coordinates	
Latitude	37-19-53.2 north
Longitude	121-53-11.2 west
Measurements (Meters)	
Overall Structure Height (AGL)	29.6
Support Structure Height (AGL)	25
Site Elevation (AMSL)	28.1
Structure Type	
BPOLE - Building with Pole	



# FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data [published in 1985 by the EPA](#) (<http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>). [▼ Show More....](#)



Channel Selection	Channel 224 (92.7 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	<input type="text" value="28.5"/>	Distance (m)	<input type="text" value="28.5"/>
ERP-H (W)	<input type="text" value="100"/>	ERP-V (W)	<input type="text" value="100"/>
Num of Elements	<input type="text" value="1"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="17"/>	<input type="button" value="Apply"/>	



\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview

Hide Tabular Results -

Distance (m)	Power Density (μW/cm²)
0	4.8
1.7	4.9
3.4	5.3
5.0294	5.6
6.7	5.7
8.3824	5.7
10.059	5.7
11.7	5.7
13.4	5.5
15.088	5.3
16.8	5.2
18.4	5.0
20.1	4.7
21.8	4.5
23.5	4.2
25.1	4.0
26.8	3.7
28.5	3.5

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