December 2019
**Engineering Exhibit – Amendment to Minor Modification**

**KBCC FM – Tracy, CA**
**Facility ID# 176022**

| | |
|---|---|
| Coordinates: | 37 42 34.36 N, 121 28 40.82 W (NAD 83) |
| Site elevation: | 43.1 meters |
| AGL: | 11.4 meters |
| AMSL: | 54.5 meters |
| Power: | 240 watts ERP |
| **HAAT:** | **-81 meters** |
| **Terrain:** | **FCC 30 second terrain database** |

Description:

Amendment to minor modification for power increase to 240 watts ERP providing more detail for the 100 dBu f (50,10) interference contour.

For consistency, calculations are updated and matched to the original HAAT values listed in authorizations for co-channel and adjacent stations using FCC 30 second terrain database.

Calculations generated with VSoft FM Commander and Probe 4 software are cross-referenced with the Distance, ERP, and HAAT calculators at the FCC.gov website. The data and mappings posted below show KBCC's 60 dBu contour at 54.5 meters AMSL and -81 m HAAT remaining clear of the 54 dBu f (50,10) contour of first-adjacent station KLRS, as well as the 40 f(50,10) contour of co-channel station KBES.

At -81 meters HAAT, KBCC's 100 dBu f(50,10) signal at 1.1km radius is also confirmed as sufficiently clearing KYCC's 60 dBu f(50,50) contour along critical radials at 211° & 212° degrees. Parameters used for distance, propagation, and HAAT calculations from FCC 30 second terrain database are provided below to confirm ERP values along each radial of KYCC's directional antenna, with no overlap.

Per §73.509, proposed modification complies with contour overlap requirements with reserved-band facilities using methodology outlined in §73.313(c).

# CHANNEL STUDY

REFERENCE
37 42 34.36 N.
121 28 40.82 W.

KBCC - Tracy, CA
CLASS = A
Current Spacings to 3rd Adj.
Channel 208 - 89.5 MHz

DISPLAY DATES
DATA 12-08-19
SEARCH 12-13-19

| Call | | Channel | Location | | Azi | Dist | FCC | Margin |
|---|---|---|---|---|---|---|---|---|
| KBES | LIC | 208A | Ceres | CA | 106.1 | 47.84 | 114.5 | -66.7 |
| KSMC | LIC-D | 208A | Moraga | CA | 284.8 | 57.62 | 114.5 | -56.9 |
| KLRS | LIC-D | 209B | Lodi | CA | 357.8 | 62.43 | 112.5 | -50.1 |
| KYCC | LIC-D | 211B | Stockton | CA | 31.7 | 32.50 | 68.5 | -36.0 |
| KZCT | LIC-D | 208A | Vallejo | CA | 308.4 | 79.62 | 114.5 | -34.9 |
| KZCT | CP -D | 208A | Vallejo | CA | 303.1 | 80.30 | 114.5 | -34.2 |
| KCAI | APP | 207A | Linden | CA | 56.8 | 38.61 | 71.5 | -32.9 |
| KPOO | LIC-D | 208A | San Francisco | CA | 276.7 | 83.13 | 114.5 | -31.4 |
| KOHL | LIC-D | 207A | Fremont | CA | 243.1 | 42.26 | 71.5 | -29.2 |
| KFJC | LIC | 209B1 | Los Altos | CA | 233.8 | 72.90 | 95.5 | -22.6 |
| KCAI | LIC-D | 207B1 | Linden | CA | 55.2 | 80.31 | 95.5 | -15.2 |
| KNVM | LIC-D | 209B | Prunedale | CA | 181.2 | 105.83 | 112.5 | -6.7 |
| KXPR | LIC-D | 205B | Sacramento | CA | 357.9 | 62.64 | 68.5 | -5.9 |
| KMTG | LIC-D | 207A | San Jose | CA | 211.1 | 65.85 | 71.5 | -5.7 |
| KPFB | LIC-D | 207A | Berkeley | CA | 284.8 | 72.29 | 71.5 | 0.8 |
| KCJH | LIC-D | 206B1 | Livingston | CA | 104.4 | 57.47 | 47.5 | 10.0 |

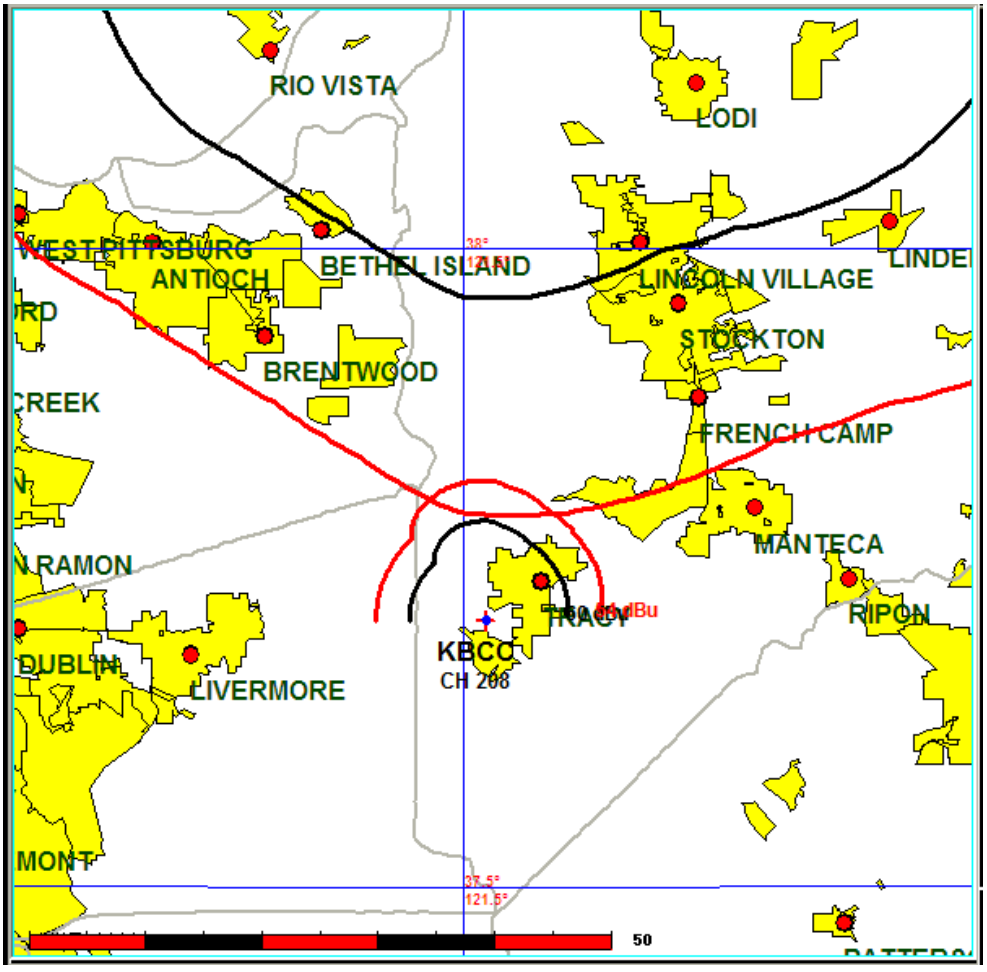
All separation margins include rounding

Station List

| Call Sign | Lic | Chan. | Svc | Cls | City | ST | DA | Power | HAAT (m) |
|---|---|---|---|---|---|---|---|---|---|
| Facility ID | | File Number | | | Licensee | | | | |
| KBCCmod | LIC | 208 | M | A | Tracy | CA | No | 0.24 | -81.0 |
| 176022 | | MOD | | | Peace And Justice Network OfSan Joaquin | | | | |
| KYCC | LIC | 211 | M | B | Stockton | CA | Yes | 41.0 | 107.0 |
| 63464 | | BLED20080930ATZ | | | Your Christian Companion Network, Inc. | | | | |
| KLRS | LIC | 209 | M | B | Lodi | CA | Yes | 2.5 | 487.0 |
| 89079 | | BLED20081103AAE | | | Educational Media Foundation | | | | |
| KBES | LIC | 208 | M | A | Ceres | CA | No | 0.15 | 40.0 |
| 4938 | | BLED20100901ACT | | | Bet Nahrain, Inc. | | | | |

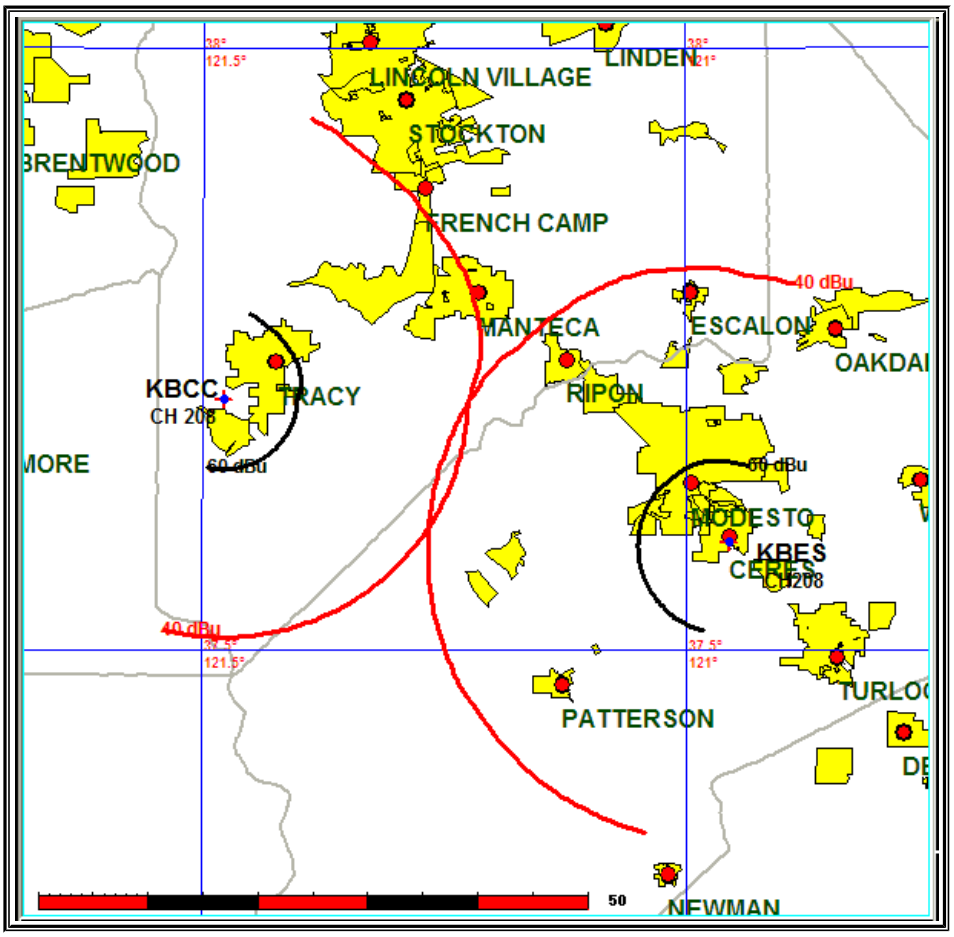
# KBCC to KLRS – First Adjacent Channel

| KBCC.C | KLRS BLED20081103AAE |
|---|---|
| Channel = 208A | Channel = 209B |
| Max ERP = 0.24 kW | Max ERP = 2.5 kW |
| RCAMSL = 54.5 m | RCAMSL = 489 m |
| HAAT = -81.0 m | HAAT = 487.0 m |
| N. Lat. 37 42 34.36 | N. Lat. 38 16 17.70 |
| W. Lng. 121 28 40.82 | W. Lng. 121 30 21.80 |
| Protected | Interfering |
| 60 dBu | 54 dBu |



# KBCC to KBES - Cochannel

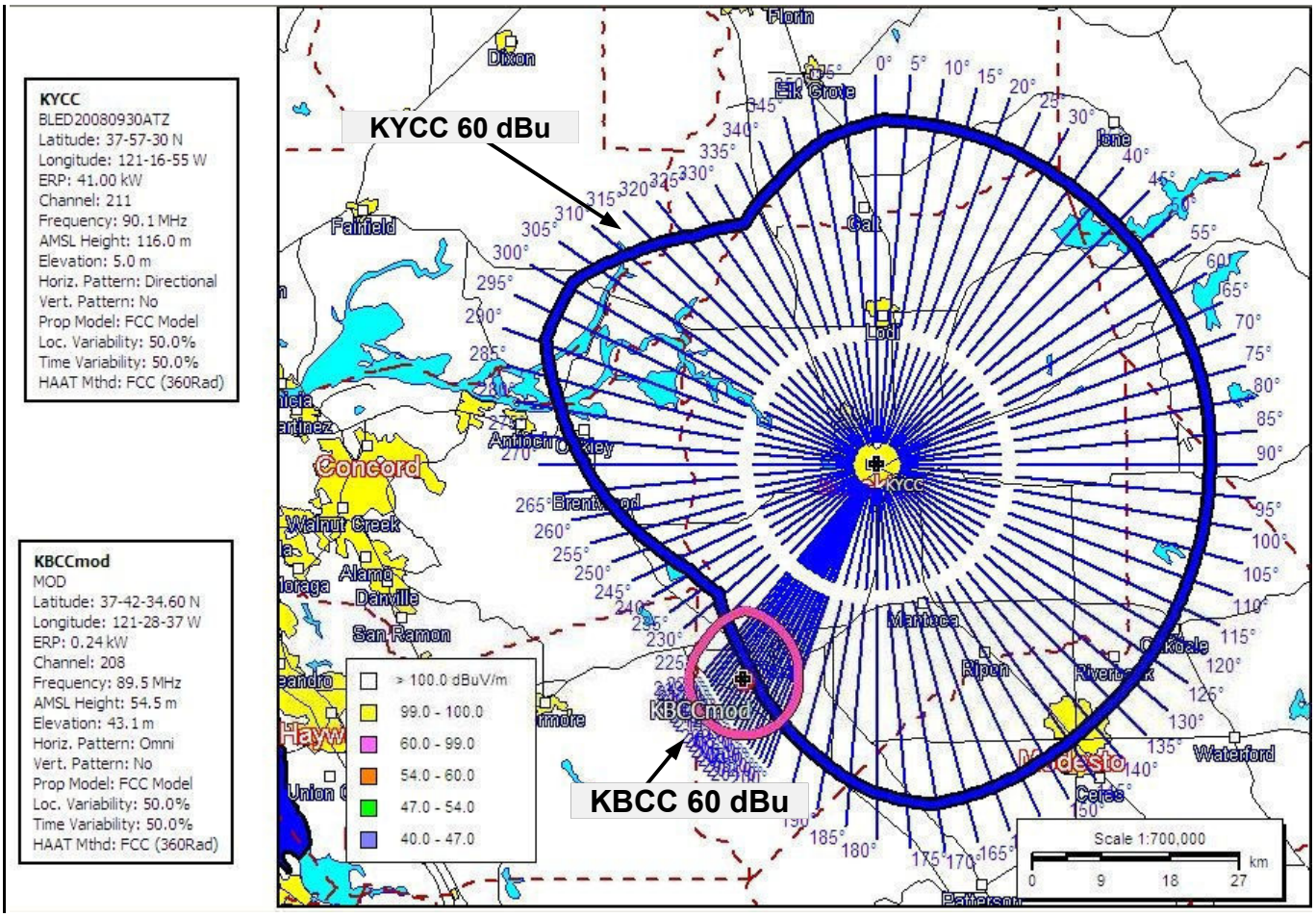
| KBCC.C | KBES BLED20100901ACT |
|---|---|
| Channel = 208A | Channel = 208A |
| Max ERP = 0.24 kW | Max ERP = 0.15 kW |
| RCAMSL = 54.5 m | RCAMSL = 72 m |
| HAAT = -81.0 m | HAAT = 40.0 m |
| N. Lat. 37 42 34.36 | N. Lat. 37 35 20.76 |
| W. Lng. 121 28 40.82 | W. Lng. 120 57 26.75 |
| Protected | Interfering |
| 60 dBu | 40 dBu |



## KBCC to KYCC - 3rd Adjacent Channel

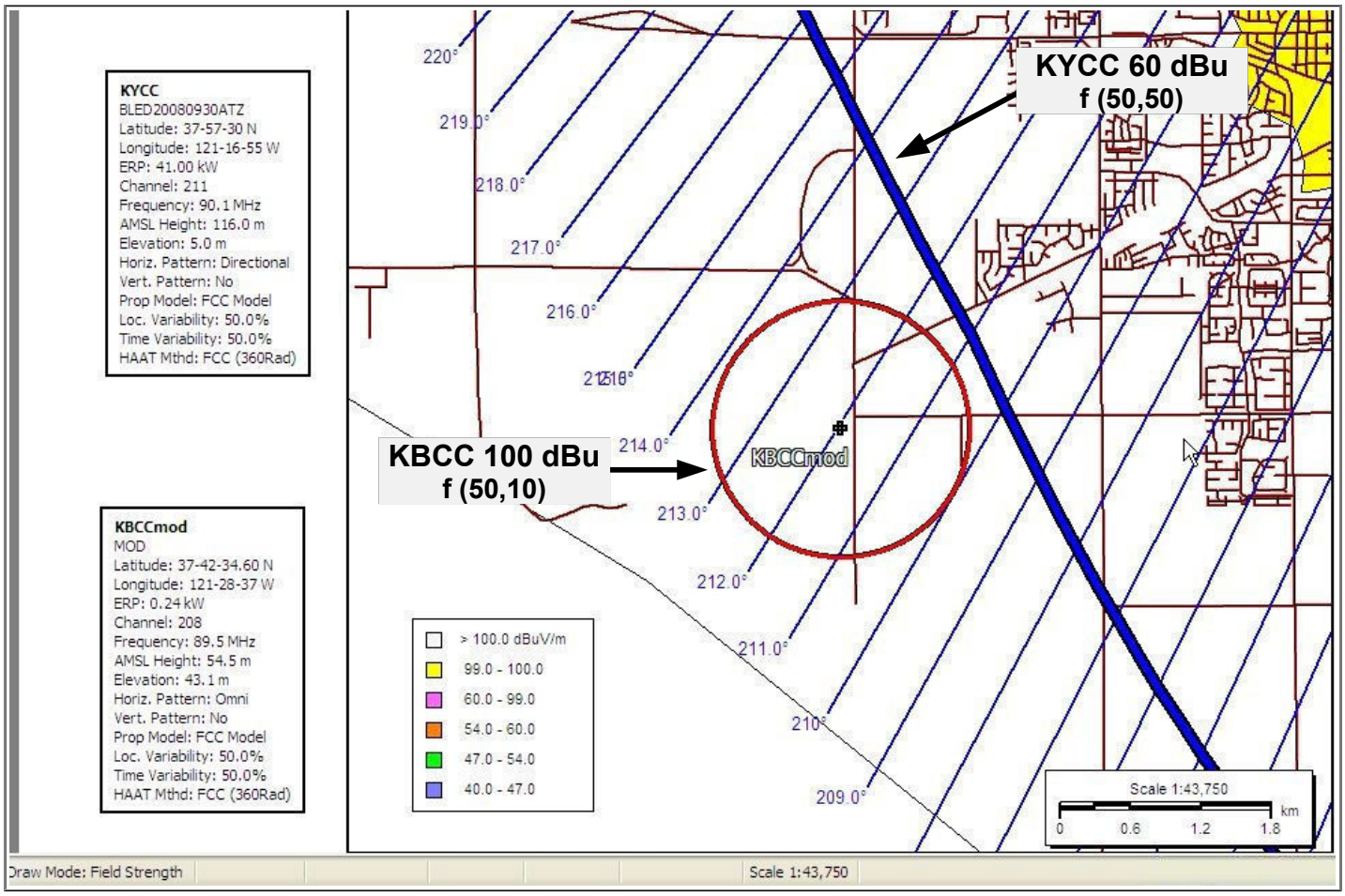
| KBCC.C | KYCC BLED20080930ATZ |
|---|---|
| Channel = 208A | Channel = 211B |
| Max ERP = 0.24 kW | Max ERP = 41.0 kW |
| RCAMSL = 54.5 m | RCAMSL = 116 m |
| HAAT = -81.0 m | HAAT = 107.0 m |
| N. Lat. 37 42 34.36 | N. Lat. 37 57 29.72 |
| W. Lng. 121 28 40.82 | W. Lng. 121 16 58.81 |
| **Protected** | **Protected** |
| * **60 f(50,50) dBu** | * **60 f(50,50) dBu** |

***** Note: 60 dBu contours visible with Map scale at 1:700,000.
(Following pages detail 100 dBu f(50,10) contour as outside of KYCC's 60 dBu)



## KBCC to KYCC - 3rd Adjacent Channel

| **KBCC**.C | **KYCC** BLED20080930ATZ |
|---|---|
| Channel = 208A | Channel = 211B |
| Max ERP = 0.24 kW | Max ERP = 41.0 kW |
| RCAMSL = 54.5 m | RCAMSL = 116 m |
| HAAT = -81.0 m | HAAT = 107.0 m |
| N. Lat. 37 42 34.36 | N. Lat. 37 57 29.72 |
| W. Lng. 121 28 40.82 | W. Lng. 121 16 58.81 |
| Interfering | **Protected** |
| **100 f(50,10) dBu** | **60 f(50,50) dBu** |




**Contour Area Coverage Report**

**Reference Area: KBCCmod (208): FCC F(50-10) 100.00 dBu (FCC HAAT)**

**Contours that completely cover the reference area (1):**
**KBCCmod (208) : FCC F(50-50) 60.00 dBu (FCC HAAT)**

**Contours that do not cover any of the reference area (1):**
**KYCC (211) : FCC F(50-50) 60.00 dBu (FCC HAAT)**

**Environmental Protection Act / NIER Analysis**

Modification of FM facility proposes a single-bay circular-polarized antenna at 11.4 meters above ground level operating at 240 watts ERP. Using the FM Model application with the "EPA Type 1" setting to approximate worst-case exposure, FM Model predicted a maximum peak of 108.36 μW/cm$^2$, at 3.3 meters below center of radiation. This represents 54.18 % of FCC Maximum Permissible Exposure (MPE) of 200 μW/cm$^2$ for uncontrolled environments. Level fall to 55.4 μW/cm$^2$ (27.7 % of MPE) at 13.3 meters, and continues dissipating further from the tower.

Site is near a greenhouse used for day parking by crews going out on landscaping jobs. Immediate area is not accessible to general public or other unauthorized persons, further reducing potential exposure. Antenna mounted on a pole is only accessible using a tall extension ladder. In an abundance of caution, a sign will be posted indicating potential RF exposure hazards. Facility will be powered down before any work is performed.

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**Exhibits:**

- **FM Model RF calculations**
- **NADCON NAD 27 -> NAD 83 conversion**
- **TOWAIR FAA clearance**
- **HAAT calculations: - 81 meters (FCC 30 second terrain database)**

## Supplemental Exhibit - Details on 100 dBu vs 60 dBu 3rd Adjacent contour

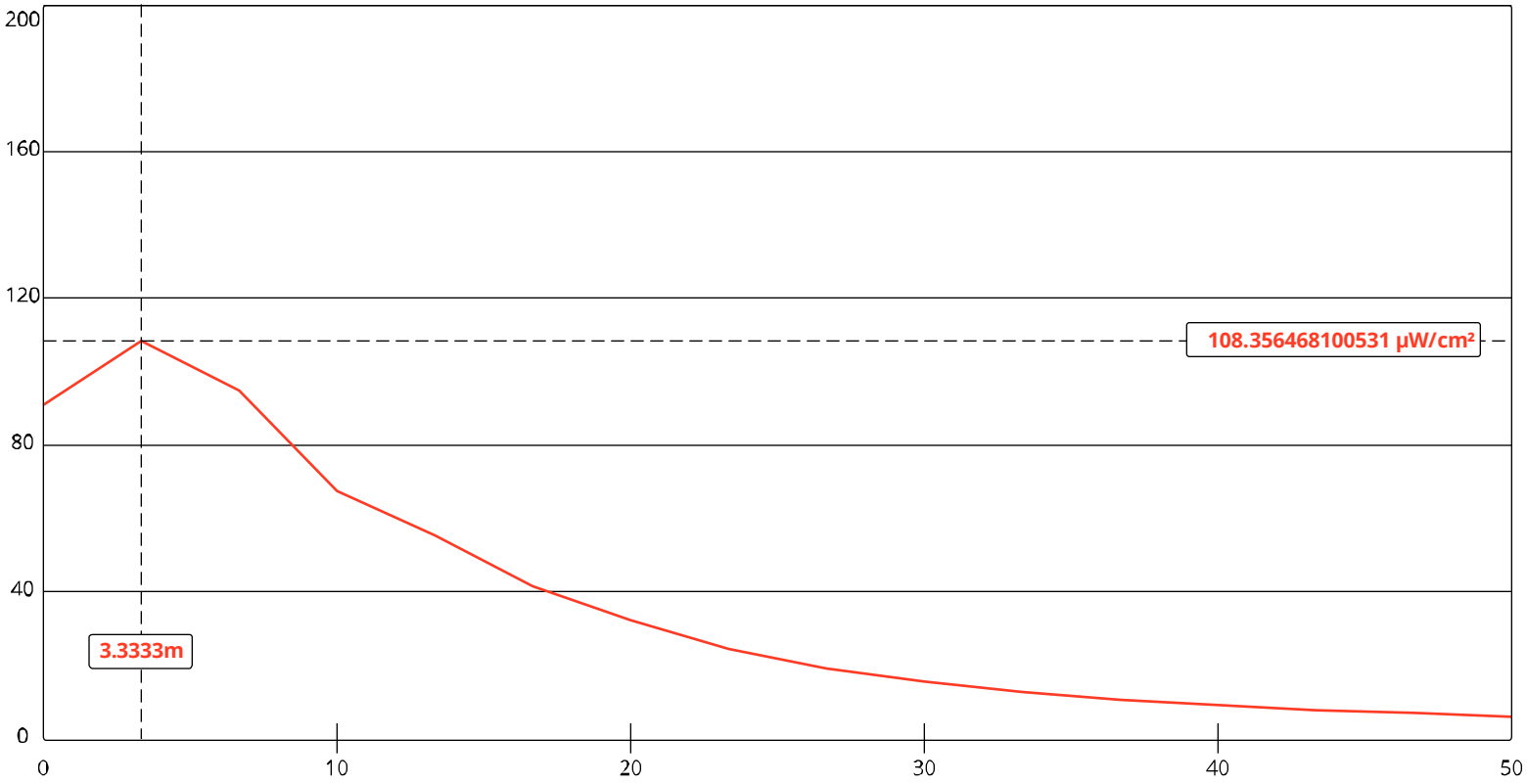
- **KYCC - FCC Engineering Authorization**
- **Calculations – HAAT, Distance, ERP, and Field Strength at critical radials (KYCC 211° - 213° degrees -> to KBCC )**
- **KYCC Directional Antenna - Relative Field at each azimuth (360° degrees)**
- **KYCC HAAT calculations: 107 meters (FCC 30 second terrain database)**

Federal Communications Commission



# 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 250 (97.9 MHz) | | |
| Antenna Type + | EPA Type 1: Ring-and-Stub or "Other" | | |
| Height (m) | 11.4 | Distance (m) | 50 |
| ERP-H (W) | 240 | ERP-V (W) | 240 |
| Num of Elements | 1 | Element Spacing (λ) | 0 |
| Num of Points | 15 | 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 | 90.7 |
| 3.3333 | 108.4 |
| 6.6667 | 94.8 |
| 10 | 67.3 |
| 13.3333 | 55.4 |
| 16.6667 | 41.4 |
| 20 | 32.1 |
| 23.3333 | 24.4 |
| 26.6667 | 19.1 |
| 30 | 15.3 |
| 33.3333 | 12.5 |
| 36.6667 | 10.5 |
| 40 | 9.0 |
| 43.3333 | 7.8 |
| 46.6667 | 6.8 |
| 50 | 6.0 |

Go to the Top of the Page

**Bureau/Office:**
Engineering & Technology (https://www.fcc.gov/engineering-technology)

**Updated:**
Friday, June 8, 2018

# Output from NADCON for station

North American Datum Conversion

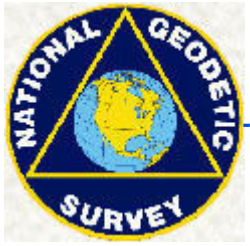
NAD 27 to NAD 83

NADCON Program Version 2.11

==========

Transformation #: 1 Region: Conus

| | Latitude | Longitude | |
|---|---|---|---|
| NAD 27 datum values: | 37 42 34.61000 | 121 28 37.02000 | |
| NAD 83 datum values: | 37 42 34.35707 | 121 28 40.82374 | |
| NAD 83 - NAD 27 shift values: | -0.25293 | 3.80374 | (secs.) |
| | -7.798 | 93.168 | (meters) |
| Magnitude of total shift: | | 93.494 | (meters) |




NGS HOME PAGE

# TOWAIR Determination Results

HELP

New Search Printable Page

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

## *** 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**

**PASS SLOPE(100:1)NO FAA REQ - 3360.0 Meters (11023.4 Feet)away & below slope by 27.0 Meters (88.5799 Feet)**

| Type | C/R | Latitude | Longitude | Name | Address | Lowest Elevation (m) | Runway Length (m) |
|---|---|---|---|---|---|---|---|
| AIRP | R | 37-41-26.00N | 121-26-54.00W | TRACY MUNI | SAN JOAQUIN TRACY, CA | 52.6 | 1219.5 |

**PASS SLOPE(100:1)NO FAA REQ - 3478.0 Meters (11410.6 Feet)away & below slope by 28.0 Meters (91.8599 Feet)**

| Type | C/R | Latitude | Longitude | Name | Address | Lowest Elevation (m) | Runway Length (m) |
|---|---|---|---|---|---|---|---|
| AIRP | R | 37-41-28.00N | 121-26-46.00W | TRACY MUNI | SAN JOAQUIN TRACY, CA | 52.6 | 1219.5 |

**Your Specifications**

| | |
|---|---|
| **NAD83 Coordinates** | |
| Latitude | 37-42-34.4 north |
| Longitude | 121-28-40.8 west |
| **Measurements (Meters)** | |
| Overall Structure Height (AGL) | 16 |
| Support Structure Height (AGL) | 0 |
| Site Elevation (AMSL) | 43.1 |
| **Structure Type** | |
| POLE - Any type of Pole | |

# Antenna Height Above Average Terrain Calculations -- Results

**Input Data**

Latitude **37° 42' 34.61"** North
Longitude **121° 28' 37.02"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of
37° 42' 34.36", North, 121° 28' 40.82" West (NAD 83).

Height of antenna radiation center above mean sea level: **54.5** meters AMSL

Number of Evenly Spaced Radials = **360** 0° is referenced to True North

## Results

Calculated HAAT = **-81 meters**

Antenna Height Above Average Terrain calculated
using FCC 30 second terrain database (continental USA only)

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

| | | | | | |
|---|---|---|---|---|---|
| 0° | 47.4 m | 120° | 11.3 m | 240° | -338.1 m |
| 1° | 47.4 m | 121° | 10.0 m | 241° | -335.7 m |
| 2° | 47.2 m | 122° | 8.6 m | 242° | -335.9 m |
| 3° | 47.1 m | 123° | 7.3 m | 243° | -339.8 m |
| 4° | 46.9 m | 124° | 6.2 m | 244° | -344.6 m |
| 5° | 46.3 m | 125° | 5.1 m | 245° | -347.8 m |
| 6° | 45.6 m | 126° | 3.9 m | 246° | -348.2 m |
| 7° | 45.0 m | 127° | 2.4 m | 247° | -343.8 m |
| 8° | 44.4 m | 128° | 0.8 m | 248° | -334.8 m |
| 9° | 44.1 m | 129° | -0.9 m | 249° | -322.7 m |
| 10° | 43.8 m | 130° | -2.8 m | 250° | -309.5 m |
| 11° | 43.5 m | 131° | -5.2 m | 251° | -297.8 m |
| 12° | 43.2 m | 132° | -8.1 m | 252° | -287.9 m |
| 13° | 43.0 m | 133° | -11.2 m | 253° | -278.6 m |
| 14° | 42.9 m | 134° | -14.4 m | 254° | -269.3 m |
| 15° | 42.9 m | 135° | -17.8 m | 255° | -259.3 m |
| 16° | 42.6 m | 136° | -21.5 m | 256° | -248.9 m |
| 17° | 42.0 m | 137° | -25.2 m | 257° | -239.9 m |
| 18° | 41.3 m | 138° | -28.7 m | 258° | -230.7 m |
| 19° | 41.0 m | 139° | -32.5 m | 259° | -221.8 m |
| 20° | 40.9 m | 140° | -36.9 m | 260° | -213.4 m |
| 21° | 41.0 m | 141° | -41.8 m | 261° | -203.5 m |
| 22° | 41.1 m | 142° | -47.1 m | 262° | -194.1 m |
| 23° | 41.1 m | 143° | -52.7 m | 263° | -185.4 m |
| 24° | 41.1 m | 144° | -58.7 m | 264° | -178.4 m |
| 25° | 41.1 m | 145° | -64.2 m | 265° | -173.3 m |
| 26° | 40.9 m | 146° | -68.3 m | 266° | -170.1 m |
| 27° | 40.6 m | 147° | -71.7 m | 267° | -166.8 m |
| 28° | 40.3 m | 148° | -75.8 m | 268° | -163.8 m |
| 29° | 40.0 m | 149° | -81.2 m | 269° | -161.1 m |
| 30° | 39.6 m | 150° | -87.0 m | 270° | -157.3 m |
| 31° | 39.2 m | 151° | -92.7 m | 271° | -152.0 m |
| 32° | 38.7 m | 152° | -98.9 m | 272° | -146.6 m |
| 33° | 38.4 m | 153° | -105.8 m | 273° | -141.3 m |
| 34° | 38.1 m | 154° | -112.4 m | 274° | -134.5 m |
| 35° | 38.0 m | 155° | -118.2 m | 275° | -128.0 m |
| 36° | 37.8 m | 156° | -124.1 m | 276° | -121.4 m |
| 37° | 37.7 m | 157° | -130.6 m | 277° | -115.8 m |
| 38° | 37.6 m | 158° | -136.0 m | 278° | -113.0 m |
| 39° | 37.5 m | 159° | -139.0 m | 279° | -109.0 m |
| 40° | 37.6 m | 160° | -141.9 m | 280° | -104.5 m |
| 41° | 37.7 m | 161° | -145.1 m | 281° | -97.7 m |
| 42° | 37.7 m | 162° | -148.0 m | 282° | -90.7 m |
| 43° | 37.7 m | 163° | -151.8 m | 283° | -85.2 m |

| | | | | | |
|---|---|---|---|---|---|
| 44° | 37.6 m | 164° | -157.3 m | 284° | -81.5 m |
| 45° | 37.6 m | 165° | -164.0 m | 285° | -79.9 m |
| 46° | 37.7 m | 166° | -171.8 m | 286° | -78.6 m |
| 47° | 37.8 m | 167° | -183.0 m | 287° | -77.2 m |
| 48° | 37.9 m | 168° | -195.3 m | 288° | -75.6 m |
| 49° | 38.0 m | 169° | -204.1 m | 289° | -74.5 m |
| 50° | 37.8 m | 170° | -210.1 m | 290° | -73.0 m |
| 51° | 37.4 m | 171° | -212.7 m | 291° | -69.9 m |
| 52° | 36.7 m | 172° | -219.0 m | 292° | -65.8 m |
| 53° | 35.9 m | 173° | -225.9 m | 293° | -61.4 m |
| 54° | 35.2 m | 174° | -230.1 m | 294° | -57.1 m |
| 55° | 34.8 m | 175° | -231.3 m | 295° | -52.5 m |
| 56° | 34.5 m | 176° | -234.1 m | 296° | -46.5 m |
| 57° | 34.4 m | 177° | -235.9 m | 297° | -39.8 m |
| 58° | 34.4 m | 178° | -236.6 m | 298° | -33.4 m |
| 59° | 34.4 m | 179° | -236.0 m | 299° | -28.1 m |
| 60° | 34.4 m | 180° | -237.4 m | 300° | -22.5 m |
| 61° | 34.4 m | 181° | -240.1 m | 301° | -16.9 m |
| 62° | 34.4 m | 182° | -242.7 m | 302° | -11.8 m |
| 63° | 34.3 m | 183° | -245.0 m | 303° | -7.9 m |
| 64° | 34.3 m | 184° | -246.5 m | 304° | -5.1 m |
| 65° | 34.2 m | 185° | -249.8 m | 305° | -2.8 m |
| 66° | 34.1 m | 186° | -257.4 m | 306° | -0.5 m |
| 67° | 33.9 m | 187° | -267.2 m | 307° | 2.2 m |
| 68° | 33.7 m | 188° | -276.2 m | 308° | 5.6 m |
| 69° | 33.5 m | 189° | -282.1 m | 309° | 9.2 m |
| 70° | 33.3 m | 190° | -286.2 m | 310° | 12.6 m |
| 71° | 33.1 m | 191° | -290.6 m | 311° | 15.7 m |
| 72° | 33.0 m | 192° | -296.1 m | 312° | 18.5 m |
| 73° | 32.8 m | 193° | -302.1 m | 313° | 21.0 m |
| 74° | 32.7 m | 194° | -309.1 m | 314° | 23.1 m |
| 75° | 32.7 m | 195° | -312.4 m | 315° | 24.8 m |
| 76° | 32.6 m | 196° | -316.9 m | 316° | 26.5 m |
| 77° | 32.4 m | 197° | -320.7 m | 317° | 28.3 m |
| 78° | 32.1 m | 198° | -323.9 m | 318° | 29.8 m |
| 79° | 31.7 m | 199° | -324.1 m | 319° | 31.1 m |
| 80° | 31.3 m | 200° | -322.7 m | 320° | 32.2 m |
| 81° | 31.0 m | 201° | -323.0 m | 321° | 33.3 m |
| 82° | 30.8 m | 202° | -323.8 m | 322° | 34.3 m |
| 83° | 30.6 m | 203° | -324.1 m | 323° | 35.4 m |
| 84° | 30.5 m | 204° | -323.5 m | 324° | 36.3 m |
| 85° | 30.4 m | 205° | -323.7 m | 325° | 37.2 m |
| 86° | 30.2 m | 206° | -326.4 m | 326° | 38.0 m |
| 87° | 30.1 m | 207° | -330.3 m | 327° | 38.8 m |
| 88° | 30.0 m | 208° | -332.8 m | 328° | 39.6 m |
| 89° | 29.8 m | 209° | -334.3 m | 329° | 40.2 m |
| 90° | 29.7 m | 210° | -337.8 m | 330° | 40.6 m |
| 91° | 29.5 m | 211° | -343.5 m | 331° | 41.0 m |
| 92° | 29.4 m | 212° | -347.7 m | 332° | 41.4 m |
| 93° | 29.2 m | 213° | -348.8 m | 333° | 41.8 m |
| 94° | 29.0 m | 214° | -346.9 m | 334° | 42.4 m |
| 95° | 28.8 m | 215° | -342.1 m | 335° | 43.1 m |
| 96° | 28.4 m | 216° | -334.0 m | 336° | 43.6 m |
| 97° | 28.1 m | 217° | -326.9 m | 337° | 44.0 m |
| 98° | 27.8 m | 218° | -323.2 m | 338° | 44.4 m |
| 99° | 27.5 m | 219° | -322.3 m | 339° | 44.7 m |
| 100° | 27.0 m | 220° | -323.2 m | 340° | 44.9 m |
| 101° | 26.4 m | 221° | -324.6 m | 341° | 45.2 m |
| 102° | 25.7 m | 222° | -325.4 m | 342° | 45.5 m |
| 103° | 25.0 m | 223° | -326.0 m | 343° | 45.8 m |
| 104° | 24.3 m | 224° | -326.0 m | 344° | 46.0 m |
| 105° | 23.7 m | 225° | -324.9 m | 345° | 46.2 m |
| 106° | 23.1 m | 226° | -323.7 m | 346° | 46.3 m |
| 107° | 22.4 m | 227° | -325.1 m | 347° | 46.4 m |
| 108° | 21.6 m | 228° | -328.2 m | 348° | 46.4 m |
| 109° | 21.1 m | 229° | -328.4 m | 349° | 46.5 m |
| 110° | 20.6 m | 230° | -323.6 m | 350° | 46.7 m |
| 111° | 20.2 m | 231° | -317.1 m | 351° | 46.9 m |
| 112° | 19.8 m | 232° | -312.7 m | 352° | 47.0 m |
| 113° | 19.4 m | 233° | -312.6 m | 353° | 47.1 m |
| 114° | 18.6 m | 234° | -317.1 m | 354° | 47.3 m |
| 115° | 17.4 m | 235° | -324.4 m | 355° | 47.4 m |
| 116° | 15.9 m | 236° | -331.9 m | 356° | 47.4 m |
| 117° | 14.5 m | 237° | -337.5 m | 357° | 47.4 m |
| 118° | 13.3 m | 238° | -340.3 m | 358° | 47.4 m |
| 119° | 12.4 m | 239° | -340.3 m | 359° | 47.4 m |