Engineering Statement

This application proposes to modify CP application BPH-20190205ABR. This application is for KCAQ. This facility is owned and operated by Gold Coast Broadcasting LLC. This application proposes the following:

1. Move the facility to 34-17-47.6; W 119-16 24.4. (NAD83)
2. To upgrade the facility to a fully spaced B1. The CP being modified is a class A.

The proposed facility will be constructed on a 26 meter self-supporting tower utilizing a two bay half wave spaced antenna with a center of radiation at 24 meters AGL. The proposed facility will put 70 dBu over more than 80% of the population of the community of license, Camarillo California. A population count of 62,332 are within the 70dBu contour (2010 census). The listed population of Camarillo California (2010 census) is 65,201. Therefore the proposed facility covers 95.6% of the total population of Camarillo, California. The ground elevation of the proposed facility was determined from a USGS topographic map.

A Channel study is included showing that this facility is a fully spaced class B1 facility at the proposed transmitter site. (NAD27 coordinates are listed on the Channel study.) There is a LPFM facility KZAA-LP, which was licensed after KCAQ's existing licensed facility. That LPFM is short spaced to KCAQ by 13Km. This proposed application would reduce that short spacing to 5.6Km. KCAQ is not required to protect this third adjacent LPFM. Though not required, this proposed application further reduced that short spacing. There is a recent application for KKCA which is currently short spaced to the licensed KCAQ facility by 16.8Km. KKCA utilizes 73.215 to protect KCAQ. This proposed application reduces that overlap to 13Km.

In this application we are utilizing the provision of 73.313 d2. We propose to truncate radial 270 degrees to utilize only the portion that crosses over land and eliminate the remaining portion of that radial which is entirely over water. The HAAT of this facility was calculated using the utility that the FCC provides. We utilized the 8 radial Global model on the FCC site, with one exception. The 270 degree radial is mostly over water. The radial leaves the proposed transmitter site and is over land for a little over 7 km before crossing over to the Pacific Ocean. This radial does not touch land again. This radial was extrapolated from a 3 second terrain database within Radio Soft software. This database is directly correlated with the FCC's database. Points were extrapolated from this database at 0.25km intervals across the portion of the radial that was over land. These points correlate with what would be 50 points if it were over the entire 3 to 16 Km. These elevations were then added together and divided by the number of points to derive the average of this portion of the radial. This elevation was incorporated into the overall 8 radial average and a final average of 223 meters HAAT was derived. Exhibits are included showing the process for determining the 270 degree radial and for determining the HAAT.

This facility will meet ANSI radiation exposure limits. An FM-Model study was done which determined that the human exposure 2 meters above ground will meet and exceed safe levels.   This is the only continuous transmission broadcast facility on this tower. There are only intermittent 2-way facilities co-located on this tower. There is another tower approximately 50 feet to the North West with a 960 watt class A facility at 41 meters AGL. The combination of the two facilities will not exceed 200 microwatts/centimeter squared.

Respectfully,

Lynden L. Williams

Engineering Consultant

34-17-48 -119-16-21 Channel 40 Spacing Study DATA

Callsign	State	City	Freq	Chann	ERP_w	Class	Status	Distance	Sep	Clr
880623MM	CA	ORCUTT	95.7	239	0	B1	USE	115.3	114	1.3
K242CW	CA	OXNARD	96.3	242	100	D	CP	9.24	0	9.2
K242CW	CA	OXNARD	96.3	242	130	D	LIC	9.23	0	9.2
KCAQ	CA	CAMARILLO	95.9	240	0	B1	USE	9.11	175	-166
KCAQ	CA	CAMARILLO	95.9	240	0	A	USE	23.12	143	-120
KCAQ	CA	CAMARILLO	95.9	240	1000	A	CP	25.95	143	-117
KCAQ	CA	CAMARILLO	95.9	240	1200	B1	LIC	8.27	175	-167
KCAQ-FM5	CA	SANTA PAULA	95.9	240	120	D	CP MOI	25.95	0	26
KCEL	CA	MOJAVE	96.1	241	630	A	LIC	127.7	96	32
KCEL*	CA	MOJAVE	96.1	241	0	A	USE	134.7	96	39
KFSH-FM	CA	LA MIRADA	95.9	240	6000	A	LIC	144.6	143	1.6
KKCA	CA	ARVIN	95.7	239	1450	A	LIC	82.65	96	-13
KPAT	CA	ORCUTT	95.7	239	3300	B1	LIC	118.5	114	4.5
KSLY	CA	SAN LUIS OBISPO	96.1	241	0	B	USE	173	145	28
KSLY	CA	SAN LUIS OBISPO	96.1	241	4500	B	LIC	173	145	28
KXOL-FM	CA	LOS ANGELES	96.3	242	0	B	USE	101.4	71	30
KXOL-FM	CA	LOS ANGELES	96.3	242	6600	B	LIC	94.08	71	23
KXOL-FM	CA	LOS ANGELES	96.3	242	22000	B	LIC	101.4	71	30
KXXZ	CA	BARSTOW	95.9	240	8900	B1	LIC	213.2	175	38
KZAA-LP	CA	SANTA BARBARA	96.5	243	100	LP100	LIC	40.41	46	-5.6

There are two short spacings listed. First KZAA-LP is a 3rd adjacent which is not
required that KCAQ protect. KZAA-LP is currently 13Km short space to KCAQ licnesed.
This application reduces that spacing to 5.6Km.   KCAA , KKCA is a recent filing that currently
uses 73.215 to protect Licensed KCAQ. KKCA   is 16.8Km short spaced to the current
Licensed KCAQ. The Proposed KCAQ reduces that short spacing to 13Km. Therefore
this proposed application demonstrates that KCAQ is a fully spaced B1.

270 Degree Radial

3.0 km	18 meters
3.25 km	18 meters
3.5 km	63 meters
3.75 lm	93 meters
4.0 km	121 meters
4.5 km	148 meters
4.75 km	215 meters
5.0 km	263 meters
5.25 km	125 meters
5.50 km	234 meters
5.75 km	168 meters
6.00 km	83 meters
6.25 km	29 meters
6.50 km	Sea Level

Total = 1774

1774 ÷ 13 = 126.71428 (rounded to 127 meters)

8 Radial HAAT Calculations

0 detree	234.6
45 degree	249.9
90degree	146
135 degree	31.4
180 degree	1.1
225 degree	0.5
270 degree	127
315 degree	333.7

Total = 1224.2   Total of 8 radial averages

1224.2 ÷ 8 = 153.025   (rounded to 153)

376 -153 = 223 meters HAAT

The FCC's Global 8 radial calculator was used for all but the 270 degree
radial. The 270 degree radial was calculated from data from a tarrain
plot of the radial utalizing 0.25Km increments. A separate showing of
this radial are included in this application.   The data came from a
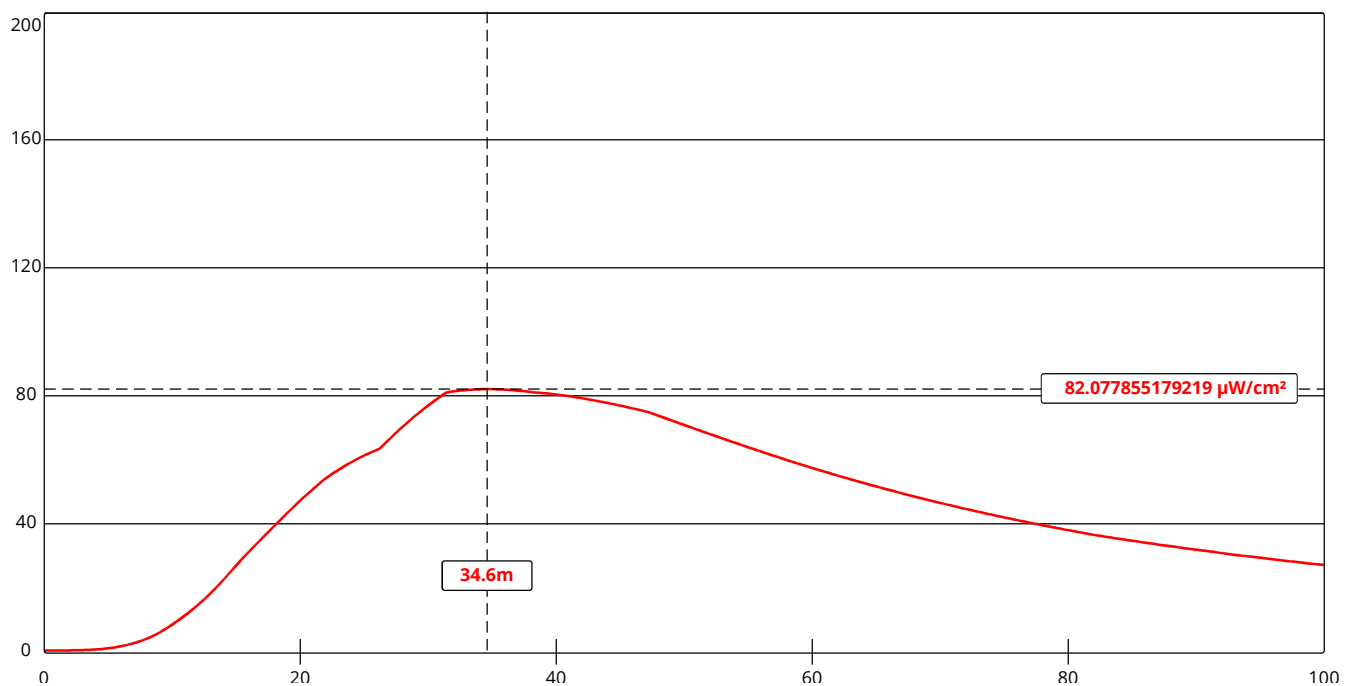3 second terrain data base in Comstudy.

FC 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/x150y150g 16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results% 20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL). ▼ Show More....

View Tabular Results +

Channel Selection	Channel 250 (97.9 MHz) ▾		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	24	Distance (m)	100
ERP-H (W)	5000	ERP-V (W)	5000
Num of Elements	2	Element Spacing (λ)	.5
Num of Points	500		Apply