

# **FM MODEL**

**Calvary Chapel of Twin Falls, Inc.**

**April 2006**

**K216FI Honolulu, HI**

**BPFT-20060331BGB**

The Proposed would operate on FM Channel 218D using an S.W.R. FMEC single bay antenna, 100 watts H&V ERP. On 4/26/2006 Jerry, with the engineering department at the Prince Kuhio Hotel, was contacted for more information concerning the placement of the transmit antenna and the structure on the rooftop of the Hotel. The application is being amended to reflect information that is more accurate than what was previously submitted and obtained by CCTF's lessor, Global Signal. A picture of the hotel was located on the internet for a better visual placement of the antenna. This station is presently constructed and operating as Licensed FM Translator K216FI, BLFT-20031009ABH. This minor modification only proposes to change channel/frequency and not equipment.

The antenna is located at the top of a superstructure, which is located on the rooftop of the Prince Kuhio Hotel in Honolulu, HI (see attached picture). The antenna is 112.44 meters/368.9 feet distance from the ground level and is presently side mounted on the west side of the superstructure, on a 2" diameter 6 foot pipe. The antenna is located a distance of approximately 9.42 meters/31 feet above the rooftop of the hotel, but only 6 feet above the roof of the superstructure (this is a correction of a discrepancy from the submitted application).

The top of the superstructure is 25 feet above the top of the 37<sup>th</sup> floor of the Prince Kuhio and only houses the elevator, radio and other equipment. There are no offices or guest rooms within the superstructure. The walls and roof are reinforced concrete and the nearest guest floor is 35 feet below the top of the roof (superstructure) where the antenna is mounted, separating the transmit antenna and the floor of the guest room by 41 feet or 12.49 meters.

There is no public access to the roof of the superstructure, the interior of the superstructure or the rooftop of the hotel. The doors are locked and a key must be signed out by authorized persons at the hotel management desk. There is an RF Warning sign posted near the bottom of the ladder leading to the rooftop (superstructure), where the antenna is located. A warning sign will also be posted on the pipe that CCTF's antenna is attached to.

According to the FMModel evaluation listed next, the RF exposure becomes a problem 7.6 meters, 24.9 feet from the base of the superstructure, or the rooftop of the hotel, with the only access being the ladder with the RF Hazard clearly marked with a warning sign. The equipment is not located on the same level as the antenna and can easily be turned off before anyone accesses the ladder to climb to the roof of the

superstructure, where the antenna is located and where RF levels are projected to be in excess.

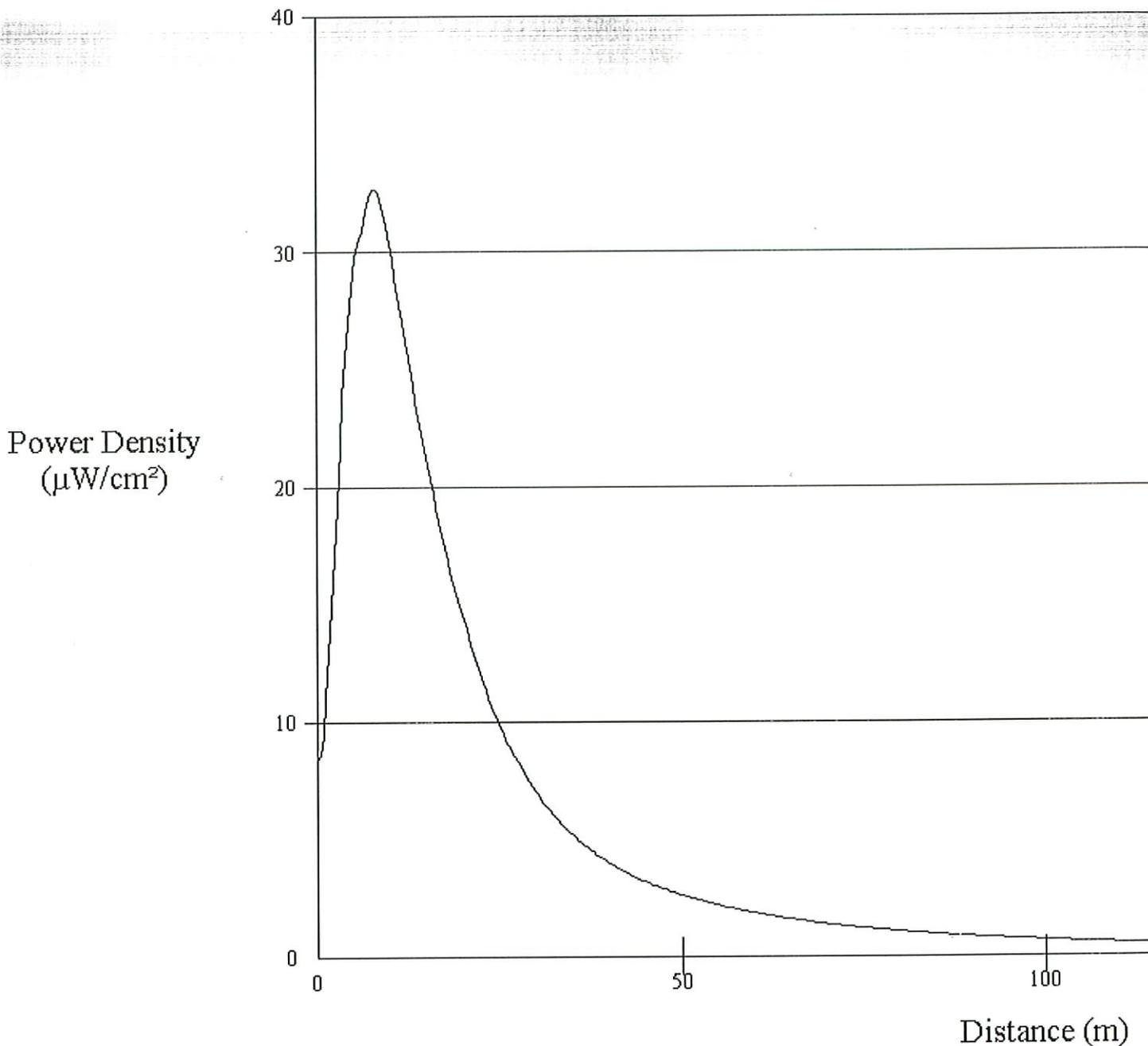
Appendix C of OST Bulletin No. 65 (second edition) specifies the maximum radiation in the 30 MHz to 300 MHz region should be limited to 1000  $\mu\text{w}/\text{cm}^2$  for occupational/controlled exposure and 200 $\mu\text{w}/\text{cm}^2$  for general population/uncontrolled exposure. The application was evaluated with a version of the Commission's own FMMODEL program, acquired from the FCC Office of Engineering and Technology Internet site. The results of these calculations are shown on the "Graph". Since the permitted power density in the FM band is 200  $\mu\text{W}/\text{cm}^2$ , as outlined in FCC OET Bulletin No.65, this application complies with the current FCC Standard with regard to uncontrolled exposure to non ionizing radiation. The application was used for the antenna location of 31 feet above the rooftop of the Prince Kuhio and not on the roof of the superstructure, which has been used as a tower like structure in this case.

**For a better evaluation, the FMMODEL Graph is done using only the distance from the rooftop of the hotel to the center of radiation of the antenna, located on the superstructure, which is 9.5 meters.**

	Emissions	Percent Occupational	Percent General
Proposed	32.68 $\mu\text{w}/\text{cm}^2$ @ 7.6 meters	3.268 %	16.34 %

All appropriate steps to insure that workers who climb the ladder (to reach the roof of the superstructure) will not be exposed to levels of non ionizing radiation, will be taken. These steps include a reduction in power or cessation of operation, as appropriate, when work becomes necessary on the roof of the superstructure in the area where the power density levels are in excess of the permitted level for controlled exposure. Because the levels of radiation are located 7.6 meters above the rooftop level of the hotel, which is just about the level of the superstructure roof, the general public located in the guest rooms of the hotel, will not be affected.

# Power Density vs Distance



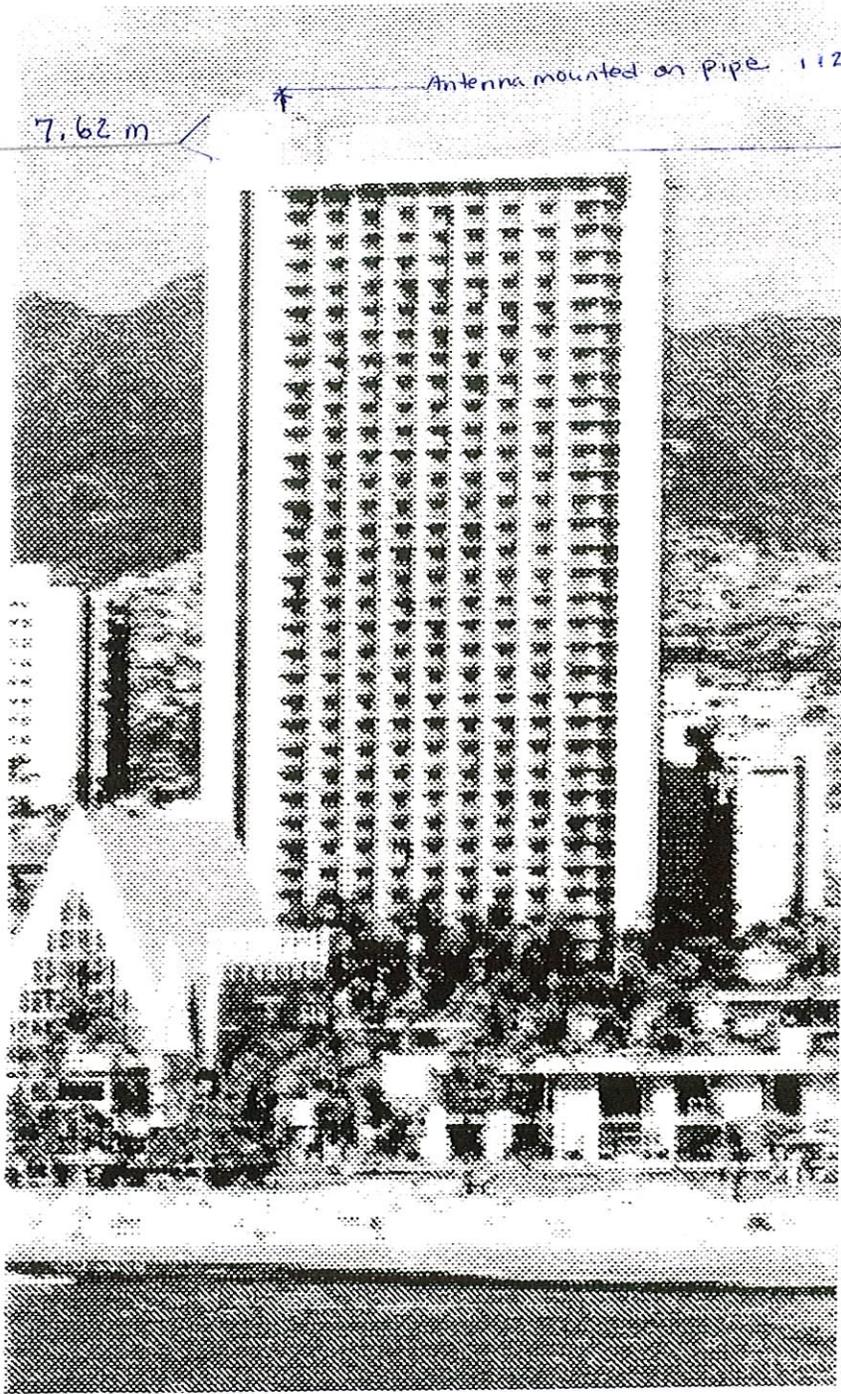
## Office of Engineering and Technology

Distance (m):	<input type="text" value="200"/>	Antenna Type:	<input type="text" value="Jampro 'Double V' (EPA)"/>
Horizontal ERP (W):	<input type="text" value="100"/>	Number of Elements:	<input type="text" value="1"/>
Vertical ERP (W):	<input type="text" value="100"/>	Element Spacing:	<input type="text" value="1"/>
Antenna Height (m):	<input type="text" value="9.5"/>		

Super-structure 7.62 m

Antenna mounted on pipe 112.44 m

Roof top 103 meters



Ground level = 2 meters

Contour.out

TERRAIN AND CONTOUR DATA

APRIL 2006

100 WATTS ERP

N. Lat. = 21 16 42 W. Lng. = 157 49 29

HAAT and Distance to Contour - FCC Method - 03 Arc Sec.

K216FI, Calvary Chapel of Twin Falls,, BPFT20060331BGB

Azi.	AV EL	HAAT	ERP kw	dBk	Field	60-F5
000	327.9	-213.9	0.1000	-10.00	1.000	5.64
030	158.0	-44.0	0.1000	-10.00	1.000	5.64
060	241.4	-127.4	0.1000	-10.00	1.000	5.64
090	15.0	99.0	0.1000	-10.00	1.000	10.27
120	1.5	112.5	0.1000	-10.00	1.000	10.91
150	0.0	114.0	0.1000	-10.00	1.000	10.97
180	0.0	114.0	0.1000	-10.00	1.000	10.97
210	0.0	114.0	0.1000	-10.00	1.000	10.97
240	0.0	114.0	0.1000	-10.00	1.000	10.97
270	0.0	114.0	0.1000	-10.00	1.000	10.97
300	4.7	109.3	0.1000	-10.00	1.000	10.76
330	143.8	-29.8	0.1000	-10.00	1.000	5.64

Ave El= 74.35 M HAAT= 39.65 M AMSL= 114 M