

**Exhibit 16, Page 1.**

**Alava Mountain Translator, Central District, Tutuila Island.**

**Section III - A - Engineering.**

**Tech Box Item 15, Environmental Protection Act.**

**The applicant, the Leone Church of Christ, affirms that the Alava Mountain Translator facility is not expected to have a significant environmental impact and will be constructed to comply with the maximum permissible radio frequency electromagnetic exposure limits for controlled and uncontrolled environments. The following Exhibit states the presently known facts with regard to maximum permissible radio frequency electromagnetic exposure limits at this site.**

**The proposed translator transmitting antenna is to be mounted at a height of 10 meters above ground on an existing tower which is 34 meters tall. The tower is owned by South Seas Broadcasting, Inc. and bears FCC registration number 1214127. It is located atop Mount Alava at 14-16-12 S Latitude and 170-41-10 W Longitude. As far as can be determined, the tower presently bears two other transmitting antennas. The transmitting antenna of FM radio station KKHJ (South Seas Broadcasting, Inc.) is mounted at the 24 meter level on the tower. And a new translator transmitting antenna of the parent FM radio station KNWJ (Showers of Blessing Radio, Inc.) is to be mounted at the 27 meter level on the tower. The tower facility is understood to be certified to meet the maximum permissible radio frequency exposure limits for the general public.**

**The actual radio frequency electromagnetic exposure due to the two antennas already mounted or scheduled to be mounted, and the exposure due to the new translator antenna proposed by this application, is determined by the calculations below. These calculations are made by use of the following EPA recommended equation, found on page 22 of OET Bulletin 65:**

$$S = 33.4 \text{ ERP/R squared,}$$

**where S is the power density in micro-watts per square centimeter,  
ERP is the effective radiated power in watts, and  
R is the distance in meters.**

**The equation approximates a worst case condition by assuming a 2.56 increase in power density due to ground reflection. The calculations double the normal ERP to account for both the horizontal and vertical radiation**

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**from circularly polarized antennas. In addition, the power density is calculated at a point two meters above the ground at the immediate foot of the antenna tower where the power density is greatest for personnel passing near the tower.**

**In the case of the KKHJ antenna already on the tower, ERP =1,100 watts, and R = 22 meters ( for the antenna mounted on the tower 24 meters above the ground).**

$$S = (33.4)(1,100 + 1,100)/(22)(22) = 151.82 \text{ microwatts/square cm.}$$

**In the case of the new translator antenna of parent station KNWJ, ERP = 10 watts, and R = 25 meters (for the antenna mounted on the tower at 27 meters above the ground).**

$$S = (33.4)(10 + 10)/(25)(25) = 1.07 \text{ microwatts/square cm.}$$

**In the case of the new translator antenna proposed by this application to be added to the tower, ERP = 15.5 watts, and R = 8 meters ( for the antenna to be mounted on the tower 10 meters above the ground).**

$$S = (33.4)(15.5+ 15.5)/(8)(8) = 16.18 \text{ microwatts/square cm.}$$

**The total worst case exposure occasioned by all three of the above antennas will be:**

$$151.82 + 1.07 + 16.18 = 169.07 \text{ microwatts/square cm.}$$

**It is concluded that the contribution to the power density by the new translator antenna proposed by this application will not increase the power density above the general population/uncontrolled limit of 200 microwatts/square centimeter or the controlled limit of 1,000 microwatts/square centimeter.**

**Compiled and signed by Francis M. Perry, PE, Consulting Engineer.  
August 22, 2003.**