KAHS-LP Channel 293L1 Aberdeen, Washington
Application for Modification of Construction Permit

The proposed operation of KAHS-LP will be on Channel 293L1 (106.5 MHz) with an effective radiated power of 100 Watts. Operation is proposed with a 2-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on a pole atop the auditorium building on the Aberdeen High School campus located at 414 North I Street in Aberdeen, Washington. This new location is within about 100 feet of the previously-authorized antenna site for KAHS-LP.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

Allocation Circumstances

The proposed KAHS-LP facility is short-spaced to one FM translator license and two FM translator applications:

K296CV BLFT-20020930AAA

This short-spacing was created by an application to modify K296CV, which was filed after the original application for KAHS-LP. The instant proposal maintains the existing 2 km spacing to K296CV.

New Hoquiam 294D BNPFT-20030317KAA

This short-spacing was created by the Hoquiam application. The instant proposal maintains the existing 18 km spacing to BNPFT-20030317KAA.

New Hoquiam 295D BNPFT-20030312BDH

This short-spacing was created by the Hoquiam application. The instant proposal maintains the existing 3 km spacing to BNPFT-20030312BDH.

Therefore, the proposed KAHS-LP facility is believed to satisfy all LPFM allocation requirements.

No Condition Necessary With Respect to KXRO-AM

The proposed operation of KAHS-LP is located 2.56 km from the nighttime directional facility of KXRO-AM 1320 kHz at Aberdeen. Construction of the KAHS-LP facility proposed herein will involve the installation of a 20 foot pole atop an existing building. The height of this pole is only 2.7% of the KXRO wavelength, i.e. just 9.7 degrees tall at 1320 kHz. Therefore, the proposed construction is not expected to have any perceptible effect on the nighttime directional pattern of KXRO, and it is respectfully requested that the Commission not condition the KAHS-LP construction permit with respect to KXRO.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation. Thus, the ground level NIER values near the base of the proposed structure are believed to be negligible. Precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques outlined in the EPA report titled: *An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM, and TV Broadcast Services* (Gailey & Tell, April, 1985). All calculations contained herein are based on the measured element patterns for the antenna, and follow the procedure shown in the Gailey and Tell report. The patterns were identified by applying the procedure outlined in the report to the measurement data contained in the report titled: *Element Pattern Measurements on FM Antennas* (EPA-520/ 6-85-107, June 1985).

"Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. Equation #1, contained in the Gailey & Tell report and shown below, was used to calculate the ground level power density figures from each antenna at incremental

distances from the base of its supporting tower.

$$S(\mu W/cm^2) = \frac{(\text{Adjusted ERP in Watts}) \times 1.64 \times 2.56 \times 100}{4 \times \pi \times (\text{Distance})^2}$$

Where: Adjusted ERP in Watts is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

Distance = Distance in meters from the center of radiation to the calculation point.

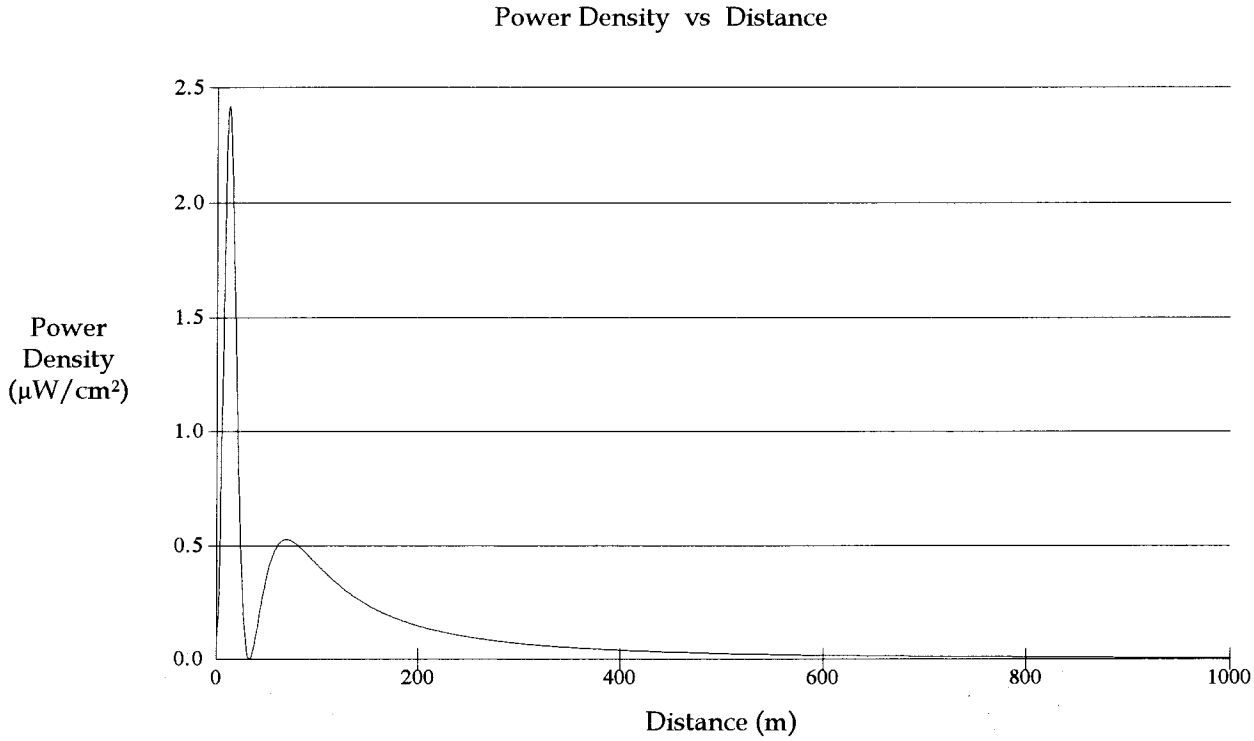
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 6 element pattern, which is the element pattern for the 2-bay Shively antenna proposed for use. The highest calculated ground level power density occurs at a distance of 13 meters from the base of the antenna support structure. At this point the power density is calculated to be 2.4 $\mu W/cm^2$, less than 1% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and less than 5% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

The antenna will be mounted a pole atop the roof of the school auditorium, 4 meters above the roof level. The highest calculated rooftop level power density occurs at a distance of 1 meter from the base of the antenna support structure. At this point the power density is calculated to be 189.7 $\mu W/cm^2$, 19% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 95% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments). Public access to the rooftop is restricted by a locked door. Access to the rooftop will be restricted to authorized personnel,

and the access door and rooftop will be posted with warning signs. Pursuant to OST Bulletin No. 65, all station personnel and contractors (including building contractors) are required to follow appropriate safety procedures before any work is commenced on the rooftop or antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.

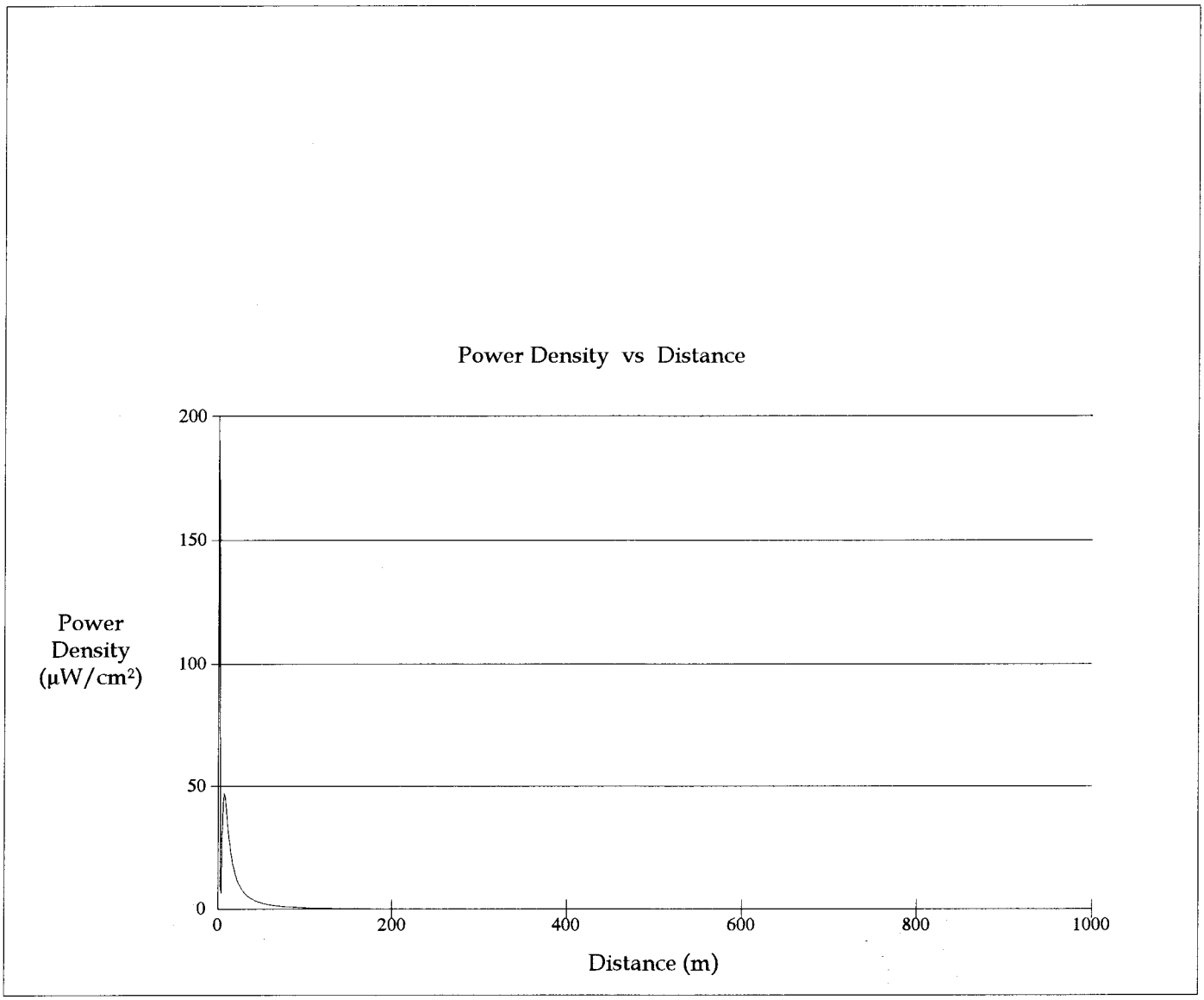


Ground-Level NIER Analysis **OET FMModel**

KAHS-LP Aberdeen

Antenna Type:	Shively 6800 Series
Number of Elements:	2
Element Spacing:	1.0 wavelength
Distance:	1000 meters
Horizontal ERP:	0.1 kW
Vertical ERP:	0.1 kW
Antenna Height:	21 meters AGL

Maximum Power Density is 2.4 μW/cm^2 at 13 meters from the antenna structure.



Rooftop-Level NIER Analysis **OET FMModel**

KAHS-LP Aberdeen
Antenna Type: Shively 6800 Series
Number of Elements: 2
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 0.1 kW
Vertical ERP: 0.1 kW

Antenna Height: 4 meters above roof level

Maximum Power Density is 189.7 μW/cm^2 at 1 meter from the antenna structure.