

**New FM Translator  
Ryndon, Nevada Channel 299D  
NIER Study  
August 2003**

**Facilities Proposed**

The proposed operation will be on Channel 299D (107.7 MHz) with an effective radiated power of 0.25 kilowatts. Operation is proposed with an antenna to be mounted on an existing pole on Elko Mountain.

The proposed antenna support structure does 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.

**NIER Calculations**

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 OET Bulletin No. 65. "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. The equation shown below, was used to calculate the ground level power density figures from each antenna.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

*D* is the distance in meters from the center of radiation to the calculation point.

Calculations of the power density produced by the translator antenna system have been made using the above formula, as applied to the attached vertical plane pattern for the Scala HDCA-5V antenna to be used. The results indicate a maximum ground level power density of 8.6 FW/cm<sup>2</sup>, which is 0.9% of 1000 FW/cm<sup>2</sup> (the FCC standard for controlled environments) and 4.3% of 200 FW/cm<sup>2</sup> (the FCC standard for uncontrolled environments).

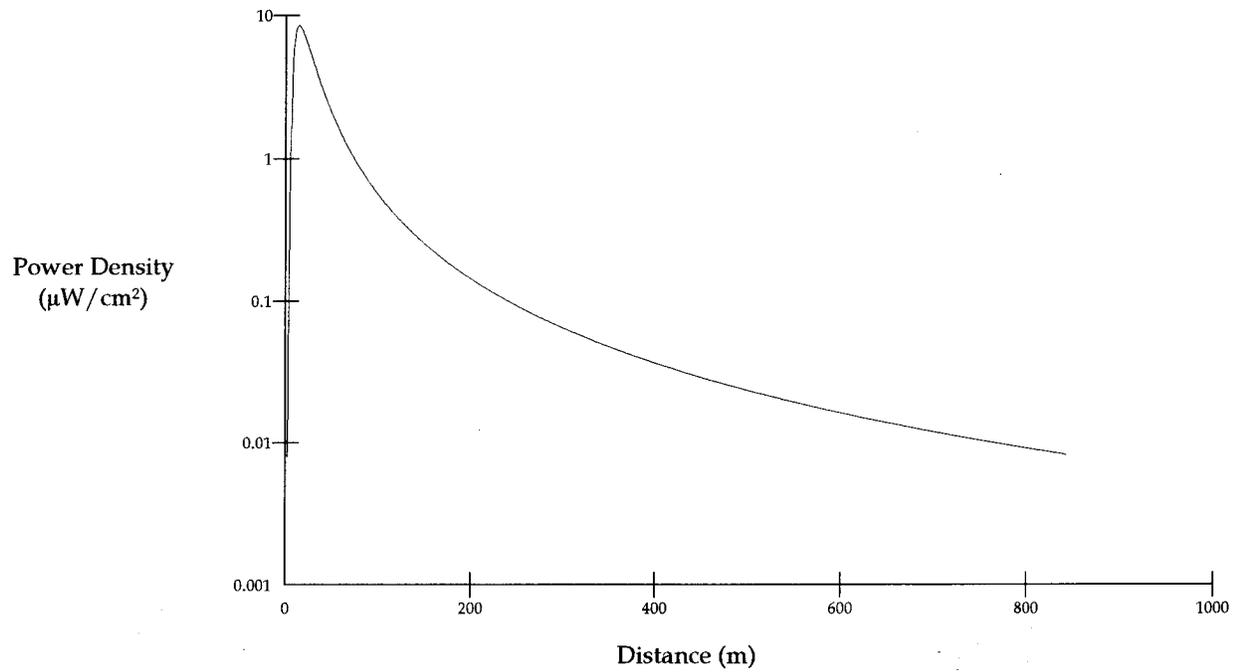
These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to

be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this application.

Public access to the site is restricted and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the 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.

### Power Density vs Distance



#### Ground-Level NIER Analysis

##### Ryndon Translator

Antenna Type: Scala HDCA-5V

Number of Elements: 1

Distance: 1000 meters

Horizontal ERP: zero Watts

Vertical ERP: 250 Watts

Antenna Height: 12 meters AGL

Maximum Power Density is  $8.6 \mu\text{W}/\text{cm}^2$  at 17 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers

Antenna: HDCA-5

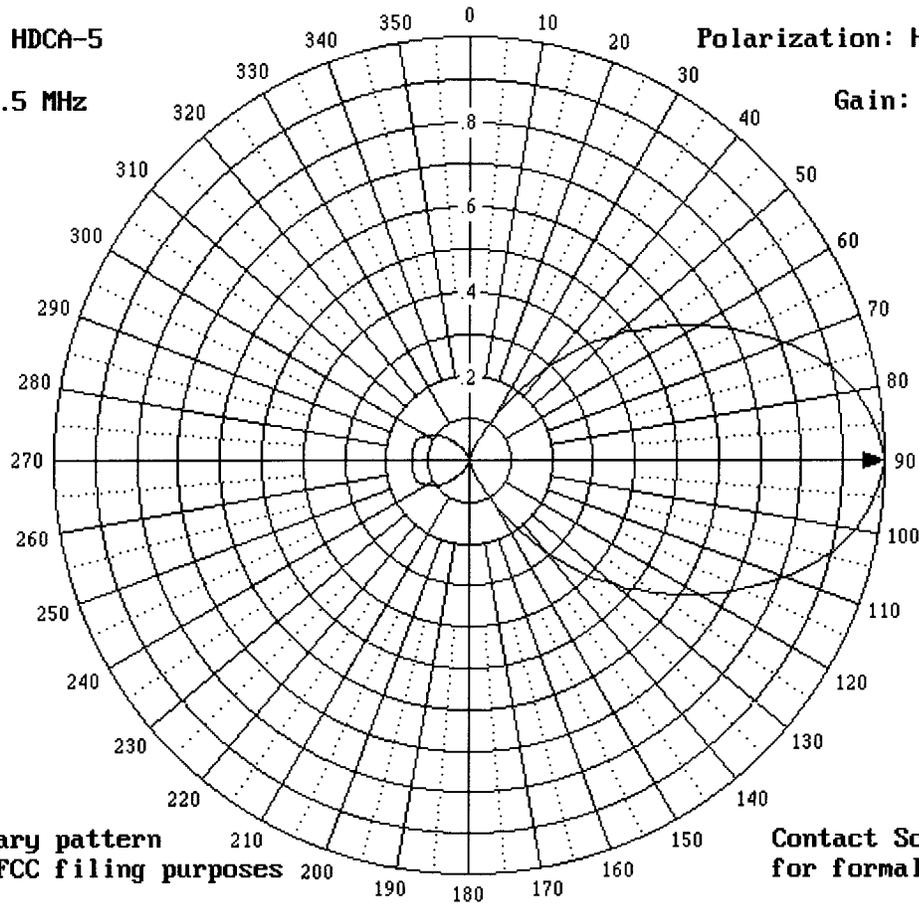
Freq: 94.5 MHz

Polarization: Horizontal

Gain: 7.5 dBd

Markers

90



Preliminary pattern  
Not for FCC filing purposes

Contact Scala  
for formal document