

KLEIN BROADCAST ENGINEERING, L.L.C.

dedicated to improving the science and technology of radio & television communications

JANUARY 2006

EXHIBIT E-10RHS
FCC FORM 302-FM APPLICATION
FOR FM BROADCAST STATION LICENSE
EQUITY COMMUNICATIONS, L.P.
W Z X L (FM)
(FCC FACILITY ID# 70260)
FM CHANNEL 264 B / 100.7 mHz.
WILDWOOD , NEW JERSEY

RF RADIATION HAZARD COMPLIANCE STATEMENT

The facilities proposed herein by the applicant, permittee or licensee, in this Engineering Exhibit comply with FCC O.S.T. Bulletin #65 and #65A as revised (1997) and the ANSI C-95.1-1982 RF and ANSI C95.1992 and the NCRP exposure guidelines. The interpolation of the figures from the above referenced document, page 18, supplement "A", shows a WORST case requirement of 24.1 meters height above ground level requirement for the radiation center of the installed four (4) bay full wave length spaced FM broadcast antenna. A combined vertical and horizontal effective radiated power of 76.0 kilowatts was used for this study and determination (38.0 kW Horiz. & 38.0kW Vert.) The radiation center of the FM broadcast antenna system is located at 102 meters above ground level (AGL), within the requirement for the antenna as determined from the above referenced documents. The antenna specified for use is an Electronics Research, Inc., model SHPX-4C, EPA Type 3, four (4) section, full wave length spaced, circularly polarized antenna. The antenna manufacturer, Electronics Research, Inc., states its antenna meets the BEST case requirements for downward radiation pattern according to the FCC O.S.T. Bulletin #65 Guidelines. The antenna uses no beam tilt and no null fill.

Occupational compliance is certified by the reduction of operating power or the complete cessation of operation during such time maintenance personnel are on the antenna support structure. A transmitter "LOCK OUT" circuit has been installed to prevent accidental turn on of the transmission equipment during the time maintenance personnel are on the antenna support structure. The applicant, permittee or licensee will cooperate with other site users in order to comply with The FCC Guidelines on Human Exposure to Non-Ionizing RF Radiation.

In addition to the preceding the applicant, permittee or licensee, has by computer program, performed additional calculations to predict RF power density at the base of the antenna support structure. This program predicts a maximum power density of 22.0242 microwatts/cm² at a distance of 41 meters from the base of the antenna support structure at a height of 2.0 meters above ground level. This is 11.01 % of the allowable RF power density for uncontrolled areas under the FCC and ANSI/EPA Guidelines, being limited to: 1.00mW/cm² for controlled areas and 200.0 microwatts/cm² for uncontrolled areas. All other power density was calculated to be below this maximum predicted level for a distance of 0 to 1000 meters distance from the base of the antenna support structure at 2.0 meters above ground level.

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There are two other sources of significant RFR on or within 1.0 kilometer of the WZXL tower and site. They are as follows: WMGM-TV Channel 40 analog TV and WMGM-DT Channel 36 digital TV. We have analyzed the licensed, construction permit, application and STA grants of these facilities and have listed the WORST case RFR contribution from the licensed analog TV transmission system, the DTV construction permit application which specifies higher ERP than does the existing DTV construction permit and finally the DTV STA facility.

The facilities studied herein for WMGM are:

BLCT-19900515KH Analog Channel 40 Licensed Facility

BPCDT-19991029AFH Digital TV Construction Permit Channel 36

BMPCDT-20050906ACO Modification Application of the above captioned Construction Permit for a DTV facility on Channel 36

BPCT-20050906ACP Modification Application for the licensed channel 40 analog transmission system

BDSTA-20030407ACR an STA low power facility for the DTV operation of channel 36 for WMGM.

Of the facilities listed above only two will be in operation at any one time. The worst case analysis of these facilities shows the highest RFR levels on the site are produced when the facility specified in BPCT-20050906ACL and the facility specified in BMPCDT-20050906ACO are simultaneously in operation as they would be when these facilities are constructed.

The E.R.P. of WMGM-TV (BLCT-19900515KH) on analog channel 40 is 741.0kW in the horizontal plane with an antenna radiation center at 130 meters AGL. This station uses an RCA Type TFU-33J antenna. The calculated contribution to the RFR levels on the WZXL tower site from this facility is 86.7 microwatts/cm² or 20.7% of the calculated limit RFR level for uncontrolled areas.

The E.R.P. of WMGM-TV (BPCT-20050906ACP) modification application to the analog channel 40 facility is 955.0kW in the horizontal plane only with an antenna radiation center at 112.8 meters AGL. The proposed antenna is an ERI ALP-24M2-HSW40. The calculated contribution to the RFR levels is 93.3 microwatts/cm² or 22.3% of the calculated limit for uncontrolled areas.

The E.R.P. of WMGM-DT Construction Permit (BPCDT-19991029AFH) is 200.0kW in the horizontal plane, with an antenna radiation center of 129.5 meters above ground level. This facility specified to operate with a Dielectric TFU-28DSC-R-03 antenna. The calculated contribution to the RFR level is a maximum of 4.1 microwatts/cm² or 1.01% of the calculated limit for uncontrolled areas.

The E.R.P. WMGM-DT Construction Permit Modification application (BMPCDT-20050906ACO) is 205.0kW in the horizontal plane, with an antenna radiation center of 127.1 meters above ground level. This proposal specifies operation with an ERI ATW18H3-HTC1-36S antenna. The calculated contribution to the RFR level is a maximum of 4.4 microwatts/cm² or 1.10% of the calculated limit for uncontrolled areas.

The E.R.P. of WMGM-DT STA facility (BDSTA-20030407ACR) in the horizontal plane is 2.69kW with an antenna radiation center of 112.7 meters above ground level. This STA facility operates with an Kathrein/Scala 4DR-4S panel antenna. The calculated contribution to the RFR level is a maximum of 1.76 microwatts/cm² or 0.44% of the calculated limit for uncontrolled areas.

To determine the worst case RFR power density levels on the WZXL site from all significant sources of RF radiation one may simply arithmetically sum the calculated maximum RFR level for each source. This equals 56.56% of the allowable maximum RFR power density level for Uncontrolled areas subject to General Public exposure. This represents a worst case situation that is actually impossible because all of the RFR sources will never be on the air at the same time. The actual real world analysis would be to sum the total contributions from the proposed channel 40 facility applied for in BPCT-20050906ACP and the facility applied for in BMPCDT-20050906ACO plus the contribution made by WZXL(FM). The sum of the contribution from those three facilities is 34.41% of the calculated RFR limit for uncontrolled areas. In either case the total RFR levels calculated to be on the WZXL(FM) common site is well below the limits for uncontrolled areas as specified in FCC O.E.T. Bulletin #65 and appended supplements as amended to date.

Additionally, RFR Hazard warning signs have been placed on the chain link fence gates in and around the site at eye level as well as other locations within the Communications Site, such as on outside doors of the transmitter equipment building.

The computer program employed for the RFR analysis in this engineering exhibit uses either the Near Field or Far Field method for the calculation of power density and was written by the Commission's O.E.T. staff. In this particular case the Far Field Method was used. The formula used by the computer program was derived from the FCC O.S.T. Bulletin #65, as revised to date.

The formula may be stated in the following manner:

$$E(V/m) = 1.6 * 221.72 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

$$H(A/m) = 1.6 * 0.588 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

Where:

ERP = effective radiated power in kilowatts, relative to a half wave dipole.

DIST = distance in meters from the antenna radiation center to the observation point in meters.

The 1.6 factor found in the ANSI/EPA formula and used above at the beginning of each equation takes into account possible contributions from ground reflections. The element pattern factor in a linearly interpolated relative field value at the appropriate depression angle below the horizon as taken directly from the EPA data. The array factor is computed at the appropriate depression angle using the number of antenna elements, when normalized to 1.0 in the main lobe. This array factor only applies to antenna arrays of point sources where each source has equal power distribution and phase, and are uniformly spaced. The element patterns themselves can be associated with particular antenna designs. As of May 1986 there were six (6) element types identified for FM antennas as listed in the ANSI/EPA data and FCC Bulletin #65. The "crossed ring" EPA Type 3 element is used on the Electronics Research, Inc., model SHPX-4C, EPA Type 3 is listed in the EPA data and was used for the calculations contained herein. There were two types listed for television, one for VHF and one for UHF.

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The formula for NTSC television may be expressed as follows:

Where S = RFR power density in uW/cm²

F = relative field factor

ERP vis = total visual ERP in watts

ERP aur = total aural ERP in watts

D = distance in meters from center of radiation to a specific point

$$S = (33.4098) (F^2) (0.4 \times \text{ERP vis} + \text{ERP aur}) / D^2$$

Calculation of the uncontrolled limits for frequencies above 300MHz. may be found in 47 C.F.R. Section 1.1301.

The General Public will not have access to the site, tower base or transmission equipment building because the site is in a sparsely populated and the only access to the site is by a gated dirt road. There is a locked gate across the only access road to the site as well as a fence around the building and tower base. Only authorized personnel have access to this locked gate. This will restrict General Public access to the actual site, tower base and transmission equipment building.

The applicant and licensee of FM Broadcast Station WZXL(FM) and will continue to cooperate with other site users to maintain compliance with the Commission's RFR Exposure Guidelines.

A vertical pattern plot of the Electronics Research, Inc., model SHPX-4C (EPA Type 3) antenna employed at WZXL(FM) is included herein and is marked Figure #1. This plot clearly shows this antenna has greatly reduced downward radiation and meets the BEST case requirements of FCC Bulletin #65, as amended to date. A graph of the RFR power density vs. Distance for this antenna is also included herein and is marked Figure #2.

The preceding assures compliance with the FCC, ANSI and NCRP requirements. Based on the preceding documents, tables, guidelines and calculations, the proposed operation of the main transmission facility for WZXL FM Broadcast Station is in compliance with the FCC O.S.T. Bulletin #65 and the ANSI C-95.1-1992 and the NCRP RF Exposure Guidelines as amended to date. The applicant, permittee or licensee certifies compliance with the ANSI, NCRP and FCC Human Exposure Guidelines to Non-Ionizing RF Radiation.

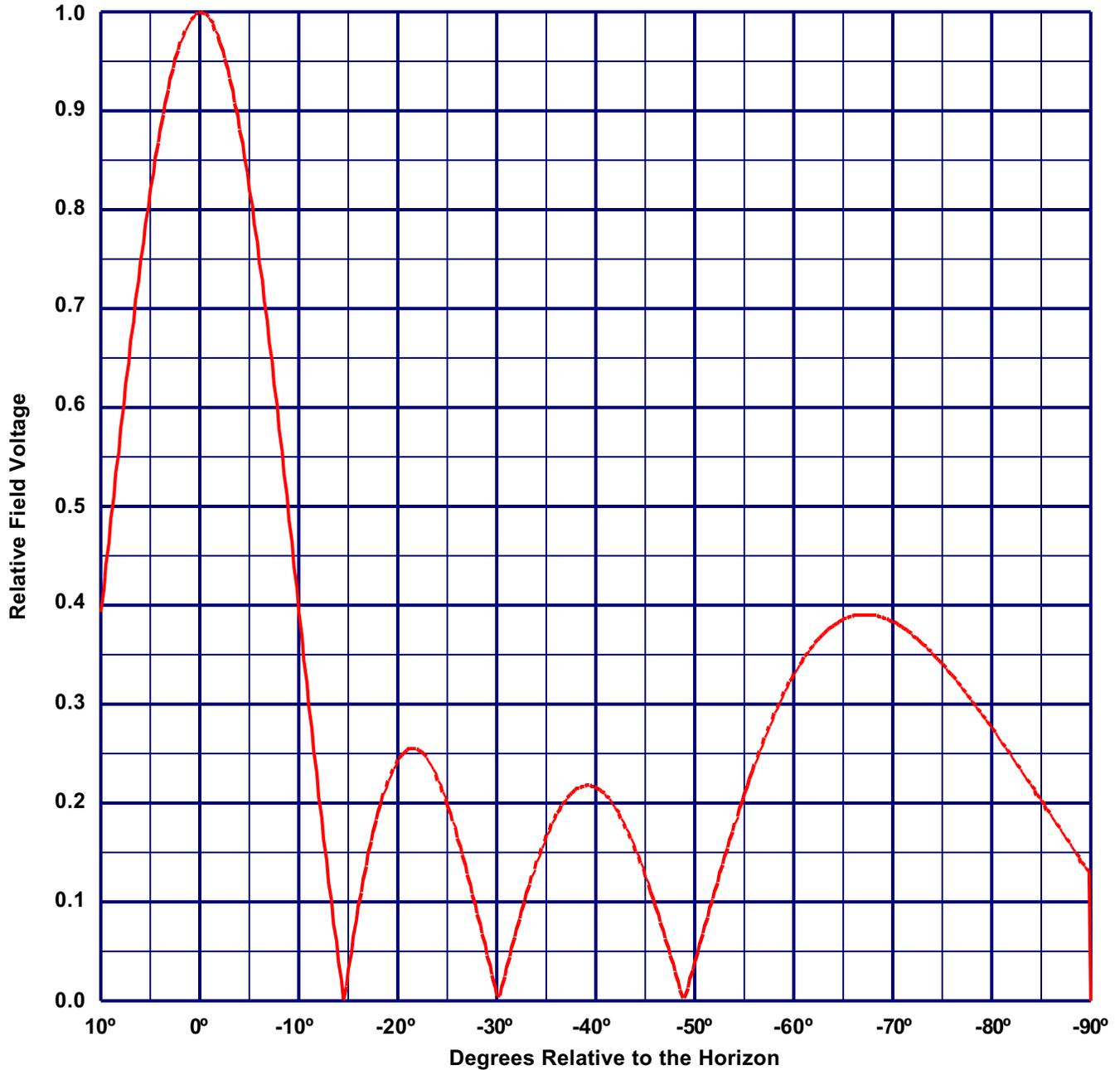


EXHIBIT E-10 FIGURE #1.

Vertical Plane Relative Field Pattern

ERI TYPE SHP, SHPX, MP, MPX, LP OR LPX ELEMENTS

A 4 level, 1 wave-length spaced non directional antenna
with 0° beam tilt, 0% null fill and a HIV maximum power ratio of 1.000

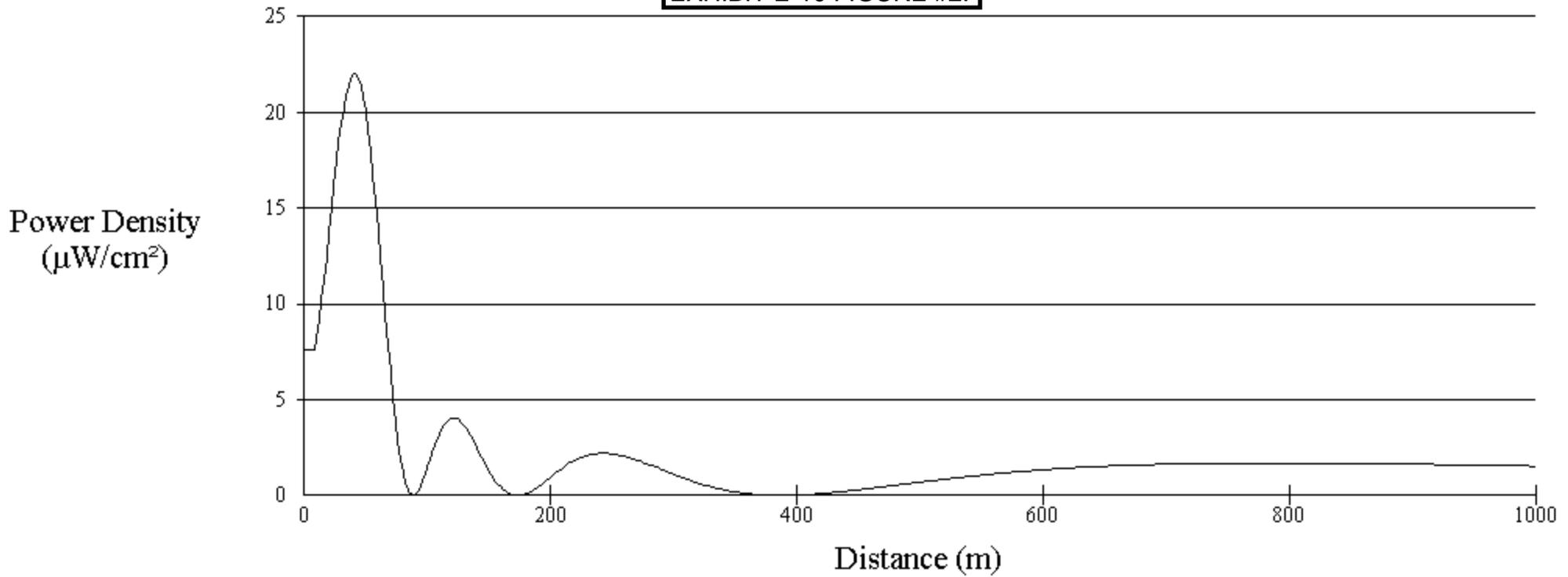


Vertical Polarization Gain:
Maximum: 2.133 (3.290 dB)
Horizontal Plane: 2.133 (3.290 dB)

Horizontal Polarization Gain:
Maximum: 2.133 (3.290 dB)
Horizontal Plane: 2.133 (3.290 dB)

Power Density vs Distance

EXHIBIT E-10 FIGURE #2.



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Distance (m):	<input type="text" value="1000"/>	Antenna Type:	<input (epa)"="" rototiller"="" type="text" value="ERI or JAMPRO JBCEP "/>
Horizontal ERP (W):	<input type="text" value="38000"/>	Number of Elements:	<input type="text" value="4"/>
Vertical ERP (W):	<input type="text" value="38000"/>	Element Spacing:	<input type="text" value="1"/>
Antenna Height (m):	<input type="text" value="102"/>		

Maximum RFR power density = 22.0242 uW/cm2 at a distance of 41 meters from the base of the antenna support structure, 2 meters above ground level.

Antenna Manufacturer & Model: Electronics Research, Inc. (ERI) SHPX-4C, a four section, full wavelength spaced, center fed FM antenna array.