COHEN, DIPPELL AND EVERIST, PC

RF Radiation

The applicant proposes to mount the DTV antenna for Station KIVI-DT on a existing tower which is located just north of the Deer Point mountain top antenna farm. This tower will allow several of the broadcast stations to relocate their antennas to help alleviate high levels of RF radiation at a certain "hot" spot located at the site.

A sketch of the Deer Point antenna farm is included as Exhibit E-4. The sketch shows the location of the existing tower. Recently, Tower A, has been dismantled and is no longer existing. KIVI(TV) channel 6 has colocated on KIVI-DT proposed tower. A list of the broadcast stations currently operating from the antenna farm is included as Exhibit E-5.

The Deer Point antenna farm is a rugged mountainous area accessible only by regular vehicle by traversing a 4 kilometer unpaved road. During colder periods, the site can only be accessed by snow mobile. Access to the site is controlled via a locked gate.

A comprehensive study of the RF Radiation at the site was performed in 1997 by Hatfield and Dawson. Hatfield and Dawson recommended fencing the perimeter of the antenna farm in order to bring the site into full compliance.

However, the terrain at the site is very rugged and the site receives high snowfalls in the winter time. Therefore, any fence constructed around the perimeter would be crushed by the snow.

Therefore, in a December 1998 memo to all the broadcasters located at the site, Dr. Robert Cleveland and Jerry Ulcek, of the Commission's Office of Engineering and Technology, recommended that signs be placed that post the perimeter of the areas where general

population/uncontrolled guidelines are exceeded. In addition, Dr. Cleveland recommended fencing a small area around Tower labeled "C" in the diagram because the occupational RFR limit is exceeded.

The Deer Point site is currently marked every 15.2 meters (50 feet) with dual level warning signs. The dual level signs permit the warnings to be observed in the winter as well as the summer. In addition, an orange construction fence around Tower C was installed on February 3, 1999.

Consequently, the Deer Point antenna farm is currently in compliance with the Commission's guidelines.

The addition of the new facilities, including the modification to KAID-DT, to operate from the proposed tower will not adversely effect the RF radiation at the site.

In addition to KIVI-DT, the following broadcast stations will also operate from the existing tower:

KAID-DT, Boise, ID	DTV Channel 21
KIVI-TV, Nampa, ID	TV Channel 6
KIZN(FM), Boise, ID	Channel 222C
KKGL(FM), Boise, ID	Channel 245C
KZMG(FM), New Plymouth, ID	Channel 226C
KBSU-FM, Boise, ID	Channel 212C
KBSX(FM), Boise, ID	Channel 218C1
KQFC(FM), Boise, ID	Channel 250C

Station KAID-DT and KIVI-DT will use the same Harris antenna which will be top mounted on the tower structure. Station KIZN(FM), KKGL(FM), KZMG(FM), KBSU-FM, KBSX(FM) and KQFC(FM) will use the same Harris antenna (TAC-6FMB-3/18).

Therefore, the RFR study will calculate the contribution of these two DTV stations, KIVI(TV) and six FM stations at the base of the existing tower and at the "hot" spot which is fenced around tower C.

RF Radiation at the Base of the Tower:

KIVI-DT DTV Facility

Channel 24	Freq:	530-536 MHz Range
	ERP =	98,700 watts
	Polarization =	Horizontal
	RCAGL - 2 meters =	91.6 meters

KIVI-DT proposes to utilize a Harris TAD-UDC-3-21 antenna with 0.75°electrical beam tilt. The manufacturers vertical plane pattern is included as Exhibit E-2A and E-2B. Based on this plot, the field factor will be less then 0.1 at any angle greater then 15 degrees below the horizon. A value of 0.1 will be used in the calculation.

$$S = \frac{33.4\,(F^2)\,\text{Tot ERP}}{R^2}$$

Tot ERP = 98.7 watts (Horizontal Only)
R = 91.6 meters
F = 0.1 (field factor)

$S = 3.93\ \mu W/cm^2$ $S = 0.004\ mW/cm^2$

Therefore, at the base of the existing tower, KIVI-DT contributes 0.002 mW/cm^2 at 2 meters above the ground.

The limit for an uncontrolled environment is f/1500 for a station broadcasting on 533 MHz.

(533 MHz)/1500 = 0.355 mW/cm^2 is the RFR limit for KIVI-DT

Therefore, KIVI-DT's proposed DTV facility will contribute only 1.1% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KAID-DT DTV Facility (Application Under Preparation)

Channel 21	Freq:	512-518 MHz Range
	ERP =	197,400 watts
	Polarization =	Horizontal
	RCAGL - 2 meters =	91.6 meters

KAID-DT will be utilizing the Harris TAD-UDC-3-21 antenna with 0.75°electrical beam tilt. The manufacturers vertical plane pattern for KAID-DT is almost identical to that shown for KIVI-DT. Therefore, the pattern shown for KIVI-DT in Exhibit E-2A and E-2B will be used. Based on this plot, the field factor will be less then 0.1 at any angle greater then 15 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$

Tot ERP = 197,400 watts (Horizontal Only)
R = 91.6 meters
F = 0.1 (field factor)

$S = 7.68\ \mu W/cm^2$ $S = 0.0079\ mW/cm^2$

Therefore, at the base of the existing tower, KAID-DT contributes 0.0079 mW/cm^2 at 2 meters above the ground.

The limit for an uncontrolled environment is f/1500 for a station broadcasting on 515 MHz.

(515 MHz)/1500 = 0.343 mW/cm^2 is the RFR limit for KAID-DT

Therefore, KAID-DT's proposed DTV facility will contribute only 2.29% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KIVI-TV NTSC Facility

Channel 6	Freq:	82-88 MHz Range
	ERP =	56,000 watts
	Polarization =	Horizontal

RCAGL - 2 meters = 87.0 meters

$S = \frac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$

Tot ERP = 112,000 watts
R = 87.0 meters
F = 0.1 (field factor)

S= 2.47 uW/cm² S = 0.002 mW/cm²

Therefore, at the base of the existing tower, KIVI-TV contributes 0.002 mW/cm² at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm².

Therefore, KIVI-TV's proposed NTSC facility will contribute only 1.24% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KIZN(FM) Facility

Channel 222 Freq: 92.3 MHz
ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 62 meters

KIZN(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 62 meters
F = 0.1 (field factor)

S= 8.34 uW/cm² S = 0.00834 mW/cm²

Therefore, at the base of the existing tower, KIZN(FM) contributes 0.00834 mW/cm² at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm².

Therefore, KIZN(FM) proposed FM facility will contribute only 4.17% RFR for an uncontrolled environment two meters above the ground at the base of the tower

site.

KKGL(FM) Facility

Channel 245	Freq:	96.7 MHz
	ERP =	48,000 watts
	Polarization =	H & V
	RCAGL - 2 meters =	62 meters

KKGL(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 62 meters
F = 0.1 (field factor)

$S = 8.34 \text{ uW/cm}^2$ $S = 0.00834 \text{ mW/cm}^2$

Therefore, at the base of the existing tower, KKGL(FM) contributes 0.00834 mW/cm^2 at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm^2.

Therefore, KKGL(FM) proposed FM facility will contribute only 4.17% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KZMG(FM) Facility

Channel 226	Freq:	93.1 MHz
	ERP =	48,000 watts
	Polarization =	H & V
	RCAGL - 2 meters =	62 meters

KZMG(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 62 meters

F = 0.1 (field factor)

S= 8.34 uW/cm² S = 0.00834 mW/cm²

Therefore, at the base of the existing tower, KZMG(FM) contributes 0.00834 mW/cm² at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm².

Therefore, KZMG(FM) proposed FM facility will contribute only 4.17% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KBSU-FM Facility

Channel 212 Freq: 90.3 MHz
ERP = 17,500 watts
Polarization = H & V
RCAGL - 2 meters = 62 meters

KBSU-FM proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 35,000 watts
R = 62 meters
F = 0.1 (field factor)

S= 3.04 uW/cm² S = 0.00304 mW/cm²

Therefore, at the base of the existing tower, KBSU-FM contributes 0.00304 mW/cm² at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm².

Therefore, KBSU-FM proposed FM facility will contribute only 1.5% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KBSX(FM) Facility

Channel 218 Freq: 91.5 MHz
ERP = 3,700 watts
Polarization = H & V
RCAGL - 2 meters = 62 meters

KBSX(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$ Tot ERP = 7,400 watts
R = 62 meters
F = 0.1 (field factor)

$S = 0.64 \text{ uW/cm}^2$ $S = 0.00064 \text{ mW/cm}^2$

Therefore, at the base of the existing tower, KBSX(FM) contributes 0.00064 mW/cm^2 at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm^2.

Therefore, KBSX(FM) proposed FM facility will contribute only 0.32% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

KQFC(FM) Facility

Channel 250 Freq: 97.9 MHz
ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 62 meters

KQFC(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$ Tot ERP = 96,000 watts
R = 62 meters
F = 0.1 (field factor)

S= 8.34 uW/cm² S = 0.00834 mW/cm²

Therefore, at the base of the existing tower, KQFC(FM) contributes 0.00834 mW/cm² at 2 meters above the ground.

The limit for an uncontrolled environment is 200 uW/cm².

Therefore, KQFC(FM) proposed FM facility will contribute only 4.17% RFR for an uncontrolled environment two meters above the ground at the base of the tower site.

Total RFR At The Base Of The Existing Tower

The total RFR contribution of FM and DTV stations listed above can now be calculated:

Total RFR = KIVI-DT + KAID-DT + KIVI-TV + KIZN(FM) + KKGL(FM) + KZMG(FM) + KBSU-FM + KBSX(FM) + KQFC(FM)

Total RFR =1.1% + 2.29% + 1.24% + 4.17% + 4.17% + 4.17% + 1.5% + 0.32% + 4.17%

Total RFR = 23.13%

RF Contribution At The "Hot" Spot Around The Base Of Tower C:

The Tower labeled "C" in Exhibit E-6 is fenced to prevent access to the "hot" spot around the tower. Tower C is located approximately 76.2 meters from the proposed tower site. The distance from the proposed Harris DTV antenna to the base of tower C is approximately 119.1 meters. The RFR contribution of the two proposed DTV stations the diplexed FM stations at the base of tower C will now be calculated.

KIVI-DT DTV Facility

Channel 24	Freq:	530-536 MHz Range
	ERP =	98,700 watts
	Polarization =	Horizontal
	RCAGL - 2 meters =	119.1 meters (distance to tower C base)

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$ Tot ERP = 98,700 watts (Horizontal Only)
R = 119.1 meters
F = 0.1 (field factor)

S= 2.32 uW/cm² S = 0.002 mW/cm²

Therefore, at the base of Tower C, KIVI-DT will contribute 0.65% RFR

KAID-DT

Channel 21 Freq: 512-518 MHz Range
ERP = 197,400 watts
Polarization = Horizontal
RCAGL - 2 meters = 119.1 meters (distance to tower C base)

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$ Tot ERP = 197,400 watts (Horizontal Only)
R = 119.1 meters
F = 0.1 (field factor)

S= 4.65 uW/cm² S = 0.0047 mW/cm²

Therefore, at the base of Tower C, KAID-DT will contribute 1.35% RFR

KIVI-TV NTSC Facility

Channel 6 Freq: 82-88 MHz Range
ERP = 56,000 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters (distance to tower C base)

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$ Tot ERP = 112,000 watts
R = 119.1 meters
F = 0.1 (field factor)

S= 1.32 uW/cm² S = 0.001 mW/cm²

Therefore, at the base of Tower C, KIVI-TV will contribute 0.82% RFR

KIZN(FM) Facility

Channel 222 Freq: 92.3 MHz
ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KIZN(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 119.1 meters
F = 0.1 (field factor)

$S = 2.26 \text{ uW/cm}^2$ $S = 0.00226 \text{ mW/cm}^2$

Therefore, at the base of Tower C, KIZN(FM) will contribute only 1.13% RFR.

KKGL(FM) Facility

Channel 245 Freq: 96.7 MHz
ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KKGL(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 119.1 meters
F = 0.1 (field factor)

$S = 2.26 \text{ uW/cm}^2$ $S = 0.00226 \text{ mW/cm}^2$

Therefore, at the base of Tower C, KKGL(FM) will contribute only 1.13% RFR.

KZMG(FM) Facility

Channel 226 Freq: 93.1 MHz

ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KZMG(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 96,000 watts
R = 119.1 meters
F = 0.1 (field factor)

$S = 2.26 \text{ uW/cm}^2$ $S = 0.00226 \text{ mW/cm}^2$

Therefore, at the base of Tower C, KZMG(FM) will contribute only 1.13% RFR.

KBSU-FM Facility

Channel 212 Freq: 90.3 MHz
ERP = 17,500 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KBSU-FM proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4 (F^2) \text{ Tot ERP}}{R^2}$

Tot ERP = 35,000 watts
R = 119.1 meters
F = 0.1 (field factor)

$S = 0.82 \text{ uW/cm}^2$ $S = 0.0082 \text{ mW/cm}^2$

Therefore, at the base of Tower C, KBSU-FM will contribute only 0.41% RFR.

KBSX(FM) Facility

Channel 218 Freq: 91.5 MHz
ERP = 3,700 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KBSX(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$ Tot ERP = 7,400 watts; R = 119.1 meters; F = 0.1 (field factor)

$S = 0.82\ uW/cm^2$ $S = 0.00082\ mW/cm^2$

Therefore, at the base of Tower C, KBSX(FM) will contribute only 0.09% RFR.

KQFC(FM) Facility

Channel 250 Freq: 97.9 MHz
ERP = 48,000 watts
Polarization = H & V
RCAGL - 2 meters = 119.1 meters

KQFC(FM) proposes to utilize a Harris TAD-6FMB-3/18 antenna. The field factor will be less then 0.1 at any angle greater then 60 degrees below the horizon. A value of 0.1 will be used in the calculation.

$S = \frac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$ Tot ERP = 96,000 watts; R = 119.1 meters; F = 0.1 (field factor)

$S = 2.26\ uW/cm^2$ $S = 0.00226\ mW/cm^2$

Therefore, at the base of Tower C, KQFC(FM) will contribute only 1.13% RFR.

Total RFR Contribution Of New Facilities At The Base Of Tower C

The total RFR contribution of FM and DTV stations listed above can now be calculated:

Total RFR = KIVI-DT + KAID-DT + KIVI-TV + KIZN(FM) + KKGL(FM) + KZMG(FM) + KBSU-FM + KBSX(FM) + KQFC(FM)

Total RFR = 0.65% + 1.35% + 0.82% + 1.13% + 1.13% + 1.13% + 0.41% + 0.09% + 1.13%

Total RFR = 7.84%

Consequently, the three proposed DTV facilities and one NTSC facility will have no adverse effect on the RF radiation at the Deer Point antenna site since moving the FM operations onto the new tower will reduce the RFR level at the base of Tower C as well as the general site.

Finally, provisions will be made to reduce power or to terminate the transmitter emissions as appropriate when it is necessary for authorized personnel to access the site. All facilities operating at the Deer Point antenna farm will coordinate to ensure that workers will not be subjected to RF radiation levels in excess of the current FCC guidelines listed in OET Bulletin No. 65, dated August 1997.

Environmental Assessment

An environmental assessment (EA) is categorically excluded under Section 1.1307 of the FCC Rules and Regulations since the licensee indicates:

(a)(1) The existing tower will not be located in an officially designated wilderness area.

(a)(2) The existing tower will not be located in an officially designated wildlife preserve.

(a)(3) The existing tower will not affect any listed threatened or endangered species or habitats.

(a)(3)(ii) The existing tower will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.

(a)(4) The existing tower will not affect any known districts, sites,

buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.

(a)(5) The existing tower will not be located near any known Indian religious sites.

(a)(6) The existing tower will not be located in a flood plain.

(a)(7) The existing tower at an antenna farm will not involve a significant change in surface features of the ground in the vicinity of the tower.

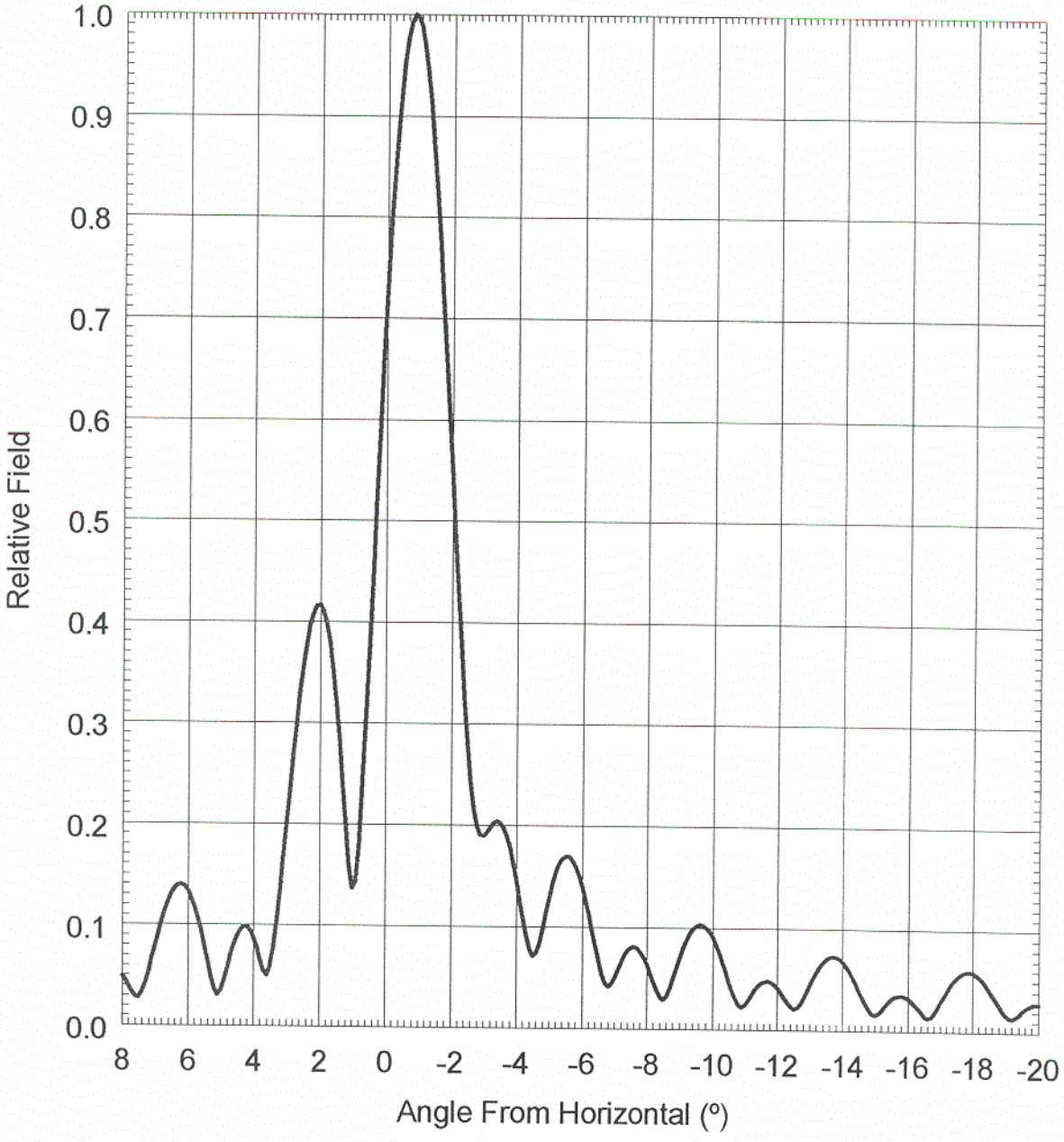
(a)(8) It is not proposed to equip the tower with high intensity white lights unless required by the FAA.

(b) Workers and the general public will not be subjected to RFR levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, August 1997 edition.

EXHIBIT E-2A

HARRIS

Calculated Elevation Pattern



Harris Pattern No.: C-14-24-2

Elevation Gain Value: 28.15

HARRIS CORPORATION BROADCAST SYSTEMS DIVISION 4770 Duke Drive, Suite 200 Cincinnati, OH 45040 513/459-3400

EXHIBIT E-2B

PATTERN LISTING

DATE: 06/22/1999
TIME: 8:44 AM

Pattern No.:

PLOT FILENAME = C:\ANTENNA\DATA\ELEVATION\C-14-24-2.PLT

ELEVATION	REL. FIELD	ELEVATION	REL. FIELD
-90.0	0.036	1.0	0.137
-80.0	0.086	2.0	0.416
-78.7	0.089	3.6	0.051
-72.6	0.017	4.3	0.098
-70.0	0.058	5.1	0.031
-69.1	0.063	6.2	0.140
-65.3	0.009	7.5	0.028
-63.7	0.019	8.3	0.055
-62.0	0.007	9.1	0.024
-60.0	0.031	10.0	0.087
-59.5	0.032	10.2	0.092
-57.1	0.007	11.5	0.017
-55.8	0.015	12.3	0.043
-54.5	0.007	13.1	0.018
-52.5	0.027	14.3	0.071
-50.5	0.005	15.6	0.018
-50.0	0.010	16.4	0.037
-49.3	0.014	17.3	0.016
-48.1	0.006	18.5	0.062
-46.3	0.025	19.8	0.015
-44.6	0.007	20.0	0.021
-43.5	0.014	20.7	0.038
-42.4	0.006	21.6	0.018
-40.8	0.024	22.8	0.060
-40.0	0.016	24.0	0.021
-39.3	0.006	25.1	0.050
-38.2	0.014	25.8	0.042
-37.1	0.007	27.8	0.150
-35.8	0.020	30.0	0.016
-34.3	0.006	30.2	0.012
-33.2	0.015	31.3	0.032
-32.5	0.014	33.3	0.004
-30.0	0.095	34.1	0.008
-29.7	0.099	35.0	0.003
-28.0	0.020	36.6	0.019
-26.6	0.079	38.1	0.005
-25.0	0.013	39.1	0.011
-24.2	0.028	40.0	0.005
-23.4	0.010	41.7	0.023
-22.1	0.055	43.3	0.005

EXHIBIT E-2B (continued)

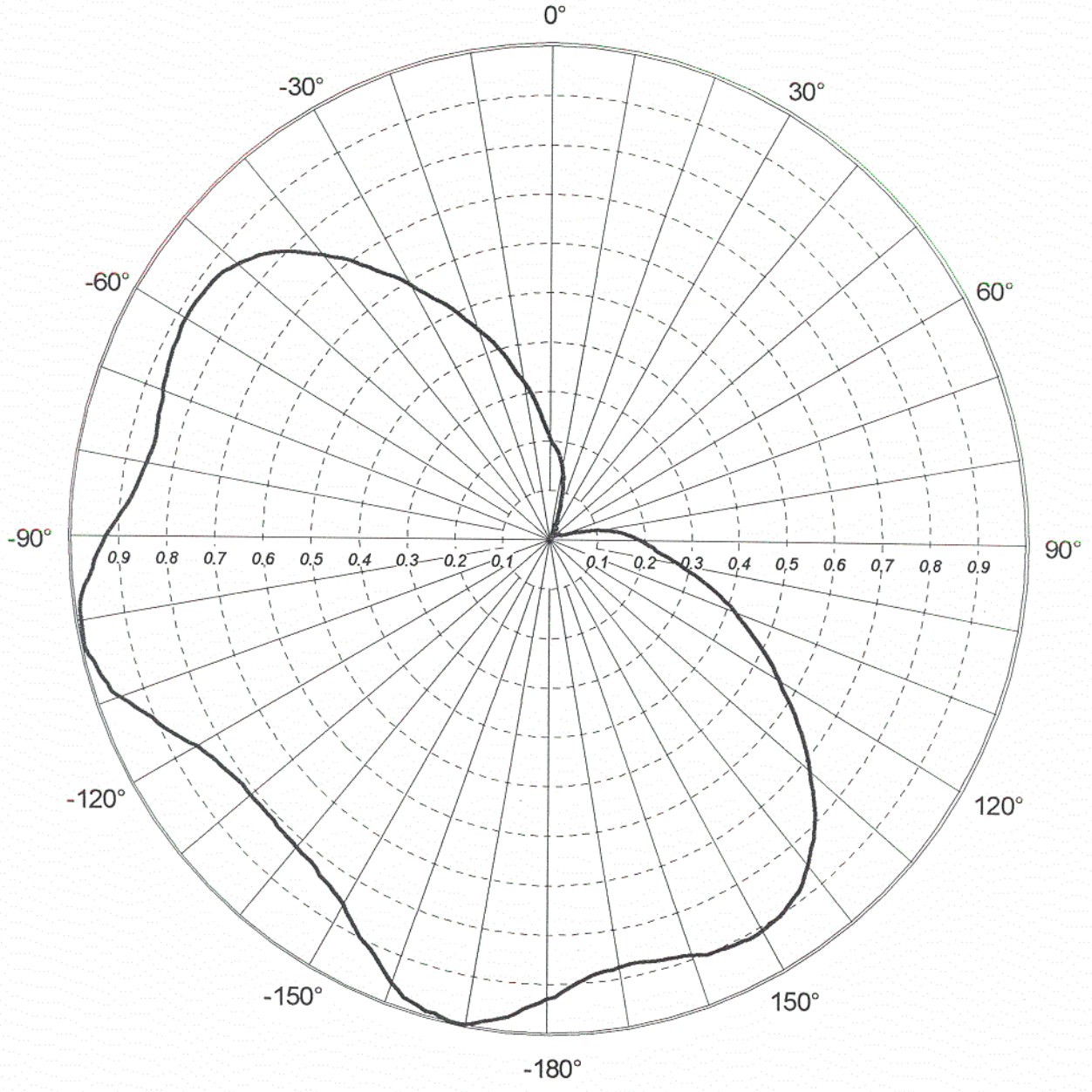
-20.8	0.013	44.4	0.013
-20.0	0.028	45.5	0.006
-19.2	0.014	47.2	0.025
-17.9	0.059	49.0	0.007
-16.6	0.013	50.0	0.015
-15.8	0.035	50.2	0.016
-15.0	0.016	51.5	0.007
-13.7	0.073	53.5	0.030
-12.5	0.021	55.5	0.008
-11.7	0.048	57.0	0.021
-10.9	0.022	58.5	0.010
-10.0	0.091	60.0	0.031
-9.6	0.103	60.9	0.037
-8.5	0.029	63.2	0.014
-7.6	0.081	65.6	0.036
-6.8	0.042	67.0	0.032
-5.5	0.170	70.0	0.096
-4.5	0.072	72.4	0.127
-3.4	0.204	80.0	0.017
-3.0	0.189	81.3	0.011
-0.8	1.000	86.4	0.020
0.0	0.722	90.0	0.018

EXHIBIT E-3A

HARRIS

LS. ISO 9001

Calculated Azimuthal Pattern, Relative Field



Harris Pattern No.: TAD-UDC-3-24

Azimuth Gain Value: 2.14

EXHIBIT E-3B

TAD-UDC-3-24.TAB

DATE: 10/8/1999
TIME: 11:36 AM
Pattern No.: TAD-UDC-3-24
PLOT FILENAME = C:\ANTENNA\DATA\KIVI (TAD-28UDA-5-70-MRST, TAC-6[8]FMB-3-18[24])\UHF-3-AROUND\TAD-UDC-3-24.PLT

Azimuth in Degs	REL. FIELD	Rel. dB	Azimuth in Degs	REL. FIELD	Rel. dB
0	0.205	-13.747	171	0.881	-1.102
10	0.150	-16.454	172	0.881	-1.102
20	0.045	-26.894	180	0.930	-0.634
25	0.010	-40.243	190	0.999	-0.012
30	0.025	-32.061	191	1.000	0.000
31	0.027	-31.512	194	0.991	-0.081
32	0.026	-31.621	195	0.992	-0.074
33	0.027	-31.282	200	0.959	-0.367
40	0.006	-44.688	210	0.858	-1.328
42	0.002	-52.086	220	0.819	-1.737
44	0.005	-46.242	221	0.817	-1.754
45	0.004	-47.076	222	0.817	-1.753
47	0.008	-41.983	226	0.811	-1.816
48	0.008	-42.268	227	0.812	-1.806
50	0.009	-40.917	228	0.811	-1.816
52	0.008	-41.442	230	0.814	-1.791
60	0.020	-33.771	232	0.813	-1.799
62	0.024	-32.516	240	0.849	-1.425
63	0.023	-32.579	250	0.953	-0.416
64	0.024	-32.294	257	0.995	-0.041
65	0.024	-32.351	260	0.992	-0.070
66	0.025	-32.158	270	0.928	-0.650
68	0.023	-32.714	280	0.856	-1.354
70	0.026	-31.569	283	0.848	-1.430
80	0.111	-19.066	287	0.855	-1.363
90	0.192	-14.337	288	0.855	-1.363
100	0.276	-11.178	290	0.861	-1.295
110	0.418	-7.577	296	0.877	-1.145
120	0.563	-4.987	297	0.876	-1.149
130	0.720	-2.849	299	0.881	-1.098
140	0.855	-1.360	300	0.881	-1.099
150	0.910	-0.820	302	0.882	-1.092
152	0.912	-0.803	310	0.858	-1.331
160	0.892	-0.994	320	0.748	-2.523
168	0.874	-1.166	330	0.591	-4.565
170	0.878	-1.131	340	0.452	-6.903
			350	0.325	-9.762