

ENGINEERING REPORT FOR
DEEPAK VISWANATH
APPLICATION FOR W45BZ
LOW POWER TELEVISION STATION
JACKSONVILLE, FL
CHANNEL 45 50 KW MAX. 178 METERS

JANURARY 24, 2001

R & L MEDIA SYSTEMS, INC.
BROADCAST CONSULTANTS
RADIO AND TELEVISION
HENDERSONVILLE, TN

Introduction

This engineering report has been prepared on behalf of Deepak Viswanath in support of a minor change application for W45BZ, FCC Facility ID No. 16394 for Channel 45 at Jacksonville, Florida.

It is proposed to operate using a Propagation Systems Inc. directional antenna with an effective radiated power (ERP) of 50 Kw and a radiation center of 178 meters above sea level. Aural power is proposed at 10% of visual power value.

Transmitter Site

It is proposed to side-mount the Channel 45 television antenna on an existing 314meter guide tower. The transmitter site is located at 8675-1 Hogan Road, Jacksonville, FL.

The NAD-27 geographic coordinates of the transmitter site are:

North Latitude: 30° 16' 51.13"

West Longitude: 81° 34' 11.67"

Equipment Data

Transmitter: Type-Verified, rated at 5 Kw visual and .5 Kw aural
Transmission Line: 178 meters of Andrew, Type LDF7-50A
(1-5/8") Foam Dielectric 50-ohm line
Antenna: Propagation Systems Inc, PSILP16EC, horizontal polarized, Slot Array Antenna.

Power Data

Visual

Transmitter output	4.29 kW	6.33 dBk
Transmission line efficiency	42.17%	-3.75 dB
Power input to antenna	1.81 kW	2.58 dBk
Antenna power gain	27.66	14.42 dB
Effective Radiated Power	50 kW	17.00 dBk

Elevation Data

Vertical dimension antenna	7.7 meters	25.2 feet
Elevation of the site above mean sea level	3.0 meters	9.8 feet
Height of top of structure above ground	313.5 meters	1028.6 feet
Height of top of supporting structure above mean sea level	316.5 meters	1038.4 feet
Radiation center above ground	175.0 meters	574.2 feet

Other Stations

No objectionable interference problems are anticipated, however, if any problems occur, the applicant will take the necessary steps to resolve them.

FCC Rule, Section 1.1307

The proposed TV operation with an ERP of 50 kW visual and 5 kW aural will utilize a Propagation Systems Inc. horizontal polarized slot array directional Channel 45 antenna. Calculations to determine power density levels from the proposed operation were performed using formulas outlined in OET Bulletin 65 (Edition 97-01) based on antenna relative field factor of .1 The formula used is:

$$S = \frac{(33.4)(F^2)(.4VERP+AERP)}{R^2}$$

The maximum power density levels at two meters above ground level are .2789 $\mu\text{W}/\text{cm}^2$ computed for a radiation center of 175 meters above ground level. The maximum allowed by OET65 bulletin is:

Occupational/Controlled Exposure	General Population
Frequency / .3	Frequency / 1.5
2,200 $\mu\text{W}/\text{cm}^2$	440 $\mu\text{W}/\text{cm}^2$

The proposed operation will be in compliance with the FCC RF radiation guidelines since areas that exceed the FCC standards will be alerted to workers by posting warning signs and restricting areas. All stations on the tower will have a mutual written agreement and procedures for workers climbing the tower. Transmitter power of each station will be reduced or terminated when workers are near areas on the tower where power density levels are in excess of the FCC

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

- (a)(1) The proposed facilities are not located in an officially designated wilderness area.
- (a)(2) The proposed facilities are not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities 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 proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
- (a)(5) The proposed facilities are not located near any known Indian religious sites.
- (a)(6) The proposed facilities are not located in a flood plain.
- (a)(7) The side-mounted TV antenna on the existing tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) The existing tower structure is not equipped with high intensity white lights.
- (b) There will be a security fence with a locked gate to surround the tower. Workers and the general public will not be subjected to RF radiation levels in excess of FCC OET Bulletin 65 (Edition 97-01). Authorized personnel will be alerted to areas of the tower where potential radiation levels are in excess of the FCC standard. The transmitter power will be reduced or terminated when necessary.

Interference Study

A study was done and the following were found to cause objectionable interference.

WAWS-TV	30	Jacksonville, FL	See attached +15 channel waiver.
WJEB-DT	44	Jacksonville, FL	See attached adjacent channel waiver.
WLCB-TV	45	Leesburg, FL	See attached contour map.

As can be seen, the proposed station meets the FCC criteria and is grantable.

15th Channel Waiver

According to the new FCC rule 74.705 (d)(6)

Subpart G--Low Power TV, TV Translator, and TV Booster Stations

Sec. 74.705 TV broadcast analog station protection.

(d) A low power TV, TV translator, or TV booster station application will not be accepted if the ratio in dB of its field strength to that of the TV broadcast station at the protected contour fails to meet the following:

(6) 6 dB when the protected TV broadcast station operates a UHF channel that is fifteen channels below the requested channel.

Please find attached a study which shows the proposed signal does not exceed a ratio of desired to undesired that exceeds the required +6 db within the TV broadcast stations protected contour, therefore, the station complies with the FCC rule and does not cause harmful interference to WAWS, Channel 30.

In order to show we do not exceed the desired to undesired ratio, we calculate the field strength of the proposed station every 30 degrees at points 1.5, 2, 3, 5, 10, 15, and 20 Km away from the tower site. In doing these calculations, we take the vertical attenuation of a multi bay antenna into account.

We then calculate the field strength of the TV broadcast station at these points and compare the field strengths to see if they meet the necessary criteria. At points where HAAT are less than 30.5, 30.5 was used per FCC rule 73.684. For close in calculations (1.5 – 5 Km), the Center of Radiation Above Ground is used unless the HAAT is higher for increased accuracy.

Calculations were compared to the FCC computer at <http://www.fcc.gov/fcc-bin/audio/curves.html> and found to be worst case within 0.5 db.

Contour At A Bearing of 000 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	2.83	1.84	10.20	15.38	16.45	16.45	16.45
	HAAT-m	172.00	172.00	172.00	172.00	163.75	163.75	163.75
	Field Strength	105.09	100.50	103.79	101.87	91.27	84.28	79.01
WAWS	-TV Distance-Km	1.44	1.94	2.94	4.94	9.94	14.94	19.94
	Bearing-Deg	3.19	2.37	1.56	.93	.46	.31	.23
	ERP-dBk	34.39	34.42	34.45	34.47	34.49	34.49	34.49
	HAAT-m	302.68	302.69	302.70	302.71	302.72	302.72	302.72
	Field Strength	138.14	134.48	130.18	124.15	114.02	107.60	102.45
	Difference	-33.05	-33.98	-26.39	-22.28	-22.75	-23.32	-23.44

Contour At A Bearing of 030 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.92	.62	.46
	ERP-dBk	3.19	2.20	10.57	15.74	16.81	16.81	16.81
	HAAT-m	172.00	172.00	172.00	172.00	161.32	161.32	161.32
	Field Strength	105.46	100.86	104.15	102.23	91.50	84.51	79.24
WAWS	-TV Distance-Km	1.49	1.99	2.99	4.99	9.99	14.98	19.98
	Bearing-Deg	33.86	32.89	31.92	31.15	30.57	30.37	30.27
	ERP-dBk	30.02	30.22	30.41	30.55	30.66	30.69	30.71
	HAAT-m	300.21	300.31	300.40	300.47	300.53	300.55	300.56
	Field Strength	133.47	130.00	125.94	120.07	110.07	103.69	98.56
	Difference	-28.01	-29.14	-21.79	-17.84	-18.57	-19.18	-19.32

Contour At A Bearing of 060 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.47
	ERP-dBk	3.19	2.20	10.57	15.74	16.81	16.81	16.81
	HAAT-m	172.00	172.00	172.00	172.00	162.53	162.53	162.53
	Field Strength	105.46	100.86	104.15	102.23	91.56	84.58	79.31
WAWS	-TV Distance-Km	1.54	2.04	3.04	5.04	10.04	15.03	20.03
	Bearing-Deg	63.48	62.63	61.76	61.06	60.53	60.35	60.26
	ERP-dBk	28.12	27.99	27.85	27.74	27.66	27.63	27.61
	HAAT-m	301.64	301.60	301.56	301.53	301.51	301.50	301.49
	Field Strength	130.56	127.51	123.22	117.15	107.01	100.60	95.44
	Difference	-25.10	-26.65	-19.07	-14.92	-15.45	-16.02	-16.13

Contour At A Bearing of 090 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	.75	-.24	8.13	13.30	14.37	14.37	14.37
	HAAT-m	172.00	172.00	172.00	172.00	164.72	164.72	164.72
	Field Strength	103.02	98.42	101.71	99.79	89.24	82.26	76.99
WAWS	-TV Distance-Km	1.58	2.08	3.08	5.08	10.08	15.08	20.08
	Bearing-Deg	92.23	91.69	91.14	90.69	90.35	90.23	90.17
	ERP-dBk	30.78	30.81	30.83	30.86	30.88	30.88	30.88
	HAAT-m	303.71	303.72	303.73	303.74	303.75	303.75	303.75
	Field Strength	132.96	130.14	126.08	120.19	110.21	103.87	98.73
	Difference	-29.94	-31.72	-24.37	-20.40	-20.97	-21.61	-21.74

Contour At A Bearing of 120 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	-5.04	-6.03	2.34	7.51	8.59	8.59	8.59
	HAAT-m	172.00	172.00	172.00	172.00	164.46	164.46	164.46
	Field Strength	97.23	92.63	95.92	94.00	83.44	76.45	71.18
WAWS	-TV Distance-Km	1.60	2.10	3.10	5.10	10.10	15.10	20.11
	Bearing-Deg	120.47	120.35	120.24	120.14	120.06	120.04	120.02
	ERP-dBk	27.53	27.54	27.55	27.56	27.56	27.56	27.57
	HAAT-m	303.08	303.09	303.11	303.12	303.13	303.14	303.14
	Field Strength	129.59	126.77	122.73	116.83	106.85	100.51	95.37
	Difference	-32.36	-34.14	-26.81	-22.83	-23.41	-24.06	-24.19

Contour At A Bearing of 150 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.46
	ERP-dBk	-8.34	-9.32	-.96	4.21	5.29	5.29	5.29
	HAAT-m	172.00	172.00	172.00	172.00	161.48	161.48	161.48
	Field Strength	93.93	89.34	92.63	90.70	79.98	73.00	67.73
WAWS	-TV Distance-Km	1.59	2.09	3.09	5.09	10.09	15.09	20.10
	Bearing-Deg	148.61	148.94	149.28	149.56	149.77	149.83	149.87
	ERP-dBk	30.51	30.57	30.63	30.68	30.72	30.73	30.74
	HAAT-m	300.33	300.39	300.44	300.48	300.52	300.53	300.53
	Field Strength	132.61	129.82	125.80	119.93	109.96	103.61	98.48
	Difference	-38.68	-40.48	-33.17	-29.23	-29.98	-30.61	-30.75

Contour At A Bearing of 180 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.47
	ERP-dBk	-8.34	-9.32	-.96	4.21	5.29	5.29	5.29
	HAAT-m	172.00	172.00	172.00	172.00	163.11	163.11	163.11
	Field Strength	93.93	89.34	92.63	90.70	80.07	73.08	67.82
WAWS	-TV Distance-Km	1.56	2.06	3.06	5.06	10.06	15.06	20.06
	Bearing-Deg	177.06	177.77	178.50	179.09	179.54	179.69	179.77
	ERP-dBk	34.40	34.43	34.45	34.47	34.49	34.49	34.49
	HAAT-m	301.90	301.96	302.02	302.06	302.10	302.11	302.12
	Field Strength	136.70	133.84	129.75	123.83	113.81	107.46	102.31
	Difference	-42.77	-44.50	-37.12	-33.13	-33.74	-34.38	-34.49

Contour At A Bearing of 210 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.64	.48
	ERP-dBk	-2.83	-3.82	4.55	9.72	10.79	10.79	10.79
	HAAT-m	172.00	172.00	172.00	172.00	166.51	166.51	166.51
	Field Strength	99.43	94.84	98.13	96.21	85.75	78.77	73.50
WAWS	-TV Distance-Km	1.52	2.02	3.01	5.01	10.01	15.01	20.02
	Bearing-Deg	206.22	207.16	208.10	208.86	209.44	209.64	209.74
	ERP-dBk	31.69	31.48	31.25	31.06	30.91	30.86	30.83
	HAAT-m	304.60	304.88	305.16	305.38	305.56	305.61	305.64
	Field Strength	134.31	131.14	126.74	120.59	110.39	103.97	98.79
	Difference	-34.88	-36.30	-28.61	-24.38	-24.64	-25.20	-25.29

Contour At A Bearing of 240 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.96	.64	.48
	ERP-dBk	1.85	.86	9.23	14.40	15.48	15.48	15.48
	HAAT-m	172.00	172.00	172.00	172.00	166.95	166.95	166.95
	Field Strength	104.12	99.52	102.81	100.89	90.46	83.48	78.21
WAWS	-TV Distance-Km	1.46	1.96	2.96	4.96	9.96	14.97	19.97
	Bearing-Deg	236.35	237.28	238.20	238.93	239.47	239.66	239.75
	ERP-dBk	27.29	27.36	27.43	27.49	27.53	27.54	27.55
	HAAT-m	306.20	306.15	306.10	306.07	306.04	306.03	306.03
	Field Strength	130.90	127.30	123.10	117.15	107.10	100.71	95.56
	Difference	-26.78	-27.78	-20.29	-16.26	-16.64	-17.23	-17.35

Contour At A Bearing of 270 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.64	.48
	ERP-dBk	3.36	2.38	10.74	15.91	16.99	16.99	16.99
	HAAT-m	172.00	172.00	172.00	172.00	166.47	166.47	166.47
	Field Strength	105.63	101.04	104.33	102.40	91.95	84.97	79.69
WAWS	-TV Distance-Km	1.42	1.92	2.92	4.92	9.92	14.92	19.92
	Bearing-Deg	267.52	268.17	268.80	269.29	269.65	269.77	269.83
	ERP-dBk	30.76	30.80	30.83	30.86	30.88	30.88	30.88
	HAAT-m	305.62	305.58	305.53	305.50	305.47	305.47	305.46
	Field Strength	134.63	130.97	126.65	120.63	110.50	104.09	98.93
	Difference	-29.00	-29.93	-22.32	-18.23	-18.55	-19.12	-19.24

Contour At A Bearing of 300 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.63	.48
	ERP-dBk	3.01	2.02	10.39	15.56	16.64	16.64	16.64
	HAAT-m	172.00	172.00	172.00	172.00	165.80	165.80	165.80
	Field Strength	105.28	100.68	103.97	102.05	91.56	84.58	79.30
WAWS	-TV Distance-Km	1.40	1.90	2.90	4.90	9.90	14.90	19.89
	Bearing-Deg	299.45	299.60	299.74	299.84	299.92	299.95	299.97
	ERP-dBk	27.66	27.63	27.61	27.59	27.58	27.57	27.57
	HAAT-m	304.77	304.78	304.79	304.79	304.80	304.80	304.80
	Field Strength	131.66	127.92	123.50	117.41	107.23	100.79	95.63
	Difference	-26.38	-27.24	-19.53	-15.36	-15.67	-16.21	-16.33

Contour At A Bearing of 330 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.96	.64	.48
	ERP-dBk	2.73	1.75	10.11	15.28	16.36	16.36	16.36
	HAAT-m	172.00	172.00	172.00	172.00	168.07	168.07	168.07
	Field Strength	105.00	100.41	103.70	101.77	91.40	84.42	79.15
WAWS	-TV Distance-Km	1.41	1.91	2.91	4.91	9.91	14.90	19.90
	Bearing-Deg	331.57	331.16	330.76	330.45	330.23	330.16	330.13
	ERP-dBk	31.17	31.07	30.96	30.88	30.82	30.80	30.80
	HAAT-m	306.72	306.85	306.98	307.08	307.15	307.17	307.18
	Field Strength	135.13	131.31	126.84	120.71	110.51	104.07	98.90
	Difference	-30.13	-30.90	-23.14	-18.94	-19.11	-19.65	-19.75

DTV Adjacent Channel

According to the new FCC rule 74.706 (d)(2)

Subpart G--Low Power TV, TV Translator, and TV Booster Stations

Sec. 74.706 Digital TV (DTV) station protection.

(d) A low power TV, TV translator or TV booster station application will not be accepted if the ratio in dB of its field strength to that of the DTV station (L/D ratio) fails to meet the following:

(2) + 48 dB for adjacent channel operations at:

(i) The DTV noise-limited perimeter if a low power TV, TV translator or TV booster station is located outside that perimeter.

(ii) At all points within the DTV noise-limited area if a low power TV or TV translator is located within the DTV noise-limited perimeter, as demonstrated by the applicant.

Please find attached a study which shows your signal does not exceed a ratio of desired to undesired that exceeds the required +48 db within the DTV noise-limited perimeter, therefore, the proposed station complies with the FCC rule and does not cause harmful interference to WJEB-DT Channel 44.

In order to show we do not exceed the desired to undesired ratio, we calculate the field strength of the proposed station every 30 degrees at points 1.5, 2, 3, 5, 10, 15, and 20 Km away from the tower site. In doing these calculations, we take the vertical attenuation of a multi bay antenna into account.

We then calculate the field strength of the TV broadcast station at these points and compare the field strengths to see if they meet the necessary criteria. At points where HAAT are less than 30.5, 30.5 was used per FCC rule 73.684. For close in calculations (1.5 – 5 Km), the Center of Radiation Above Ground is used unless the HAAT is higher for increased accuracy.

Calculations were compared to the FCC computer at <http://www.fcc.gov/fcc-bin/audio/curves.html> and found to be worst case within 0.5 db.

Contour At A Bearing of 000 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	2.83	1.84	10.20	15.38	16.45	16.45	16.45
	HAAT-m	172.00	172.00	172.00	172.00	163.75	163.75	163.75
	Field Strength	105.09	100.50	103.79	101.87	91.27	84.28	79.01
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	.00	.00	.00	.00	.00	.00	.00
	ERP-dBk	29.46	29.46	29.46	29.46	29.46	29.46	29.46
	HAAT-m	300.15	300.15	300.15	300.15	300.15	300.15	300.15
	Field Strength	132.86	129.19	124.95	118.95	108.74	102.15	96.69
	Difference	-27.77	-28.69	-21.16	-17.08	-17.47	-17.87	-17.68

Contour At A Bearing of 030 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.92	.62	.46
	ERP-dBk	3.19	2.20	10.57	15.74	16.81	16.81	16.81
	HAAT-m	172.00	172.00	172.00	172.00	161.32	161.32	161.32
	Field Strength	105.46	100.86	104.15	102.23	91.50	84.51	79.24
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	19.99
	Bearing-Deg	30.00	30.00	30.00	30.00	29.99	29.99	29.98
	ERP-dBk	28.69	28.69	28.69	28.69	28.69	28.69	28.69
	HAAT-m	297.72	297.72	297.72	297.72	297.72	297.73	297.73
	Field Strength	132.09	128.41	124.16	118.14	107.91	101.31	95.84
	Difference	-26.63	-27.55	-20.01	-15.91	-16.41	-16.80	-16.60

Contour At A Bearing of 060 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.47
	ERP-dBk	3.19	2.20	10.57	15.74	16.81	16.81	16.81
	HAAT-m	172.00	172.00	172.00	172.00	162.53	162.53	162.53
	Field Strength	105.46	100.86	104.15	102.23	91.56	84.58	79.31
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	19.99
	Bearing-Deg	60.00	60.00	60.00	60.00	60.00	60.00	59.99
	ERP-dBk	25.27	25.27	25.27	25.27	25.27	25.27	25.27
	HAAT-m	298.93	298.93	298.93	298.93	298.93	298.93	298.93
	Field Strength	128.67	124.99	120.75	114.74	104.52	97.92	92.46
	Difference	-23.21	-24.13	-16.60	-12.51	-12.96	-13.34	-13.15

Contour At A Bearing of 090 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	.75	-.24	8.13	13.30	14.37	14.37	14.37
	HAAT-m	172.00	172.00	172.00	172.00	164.72	164.72	164.72
	Field Strength	103.02	98.42	101.71	99.79	89.24	82.26	76.99
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	90.00	90.00	90.00	90.00	90.00	90.00	90.00
	ERP-dBk	23.98	23.98	23.98	23.98	23.98	23.98	23.98
	HAAT-m	301.12	301.12	301.12	301.12	301.12	301.12	301.12
	Field Strength	126.71	123.71	119.48	113.48	103.28	96.70	91.23
	Difference	-23.69	-25.29	-17.77	-13.69	-14.04	-14.44	-14.24

Contour At A Bearing of 120 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.94	.63	.47
	ERP-dBk	-5.04	-6.03	2.34	7.51	8.59	8.59	8.59
	HAAT-m	172.00	172.00	172.00	172.00	164.46	164.46	164.46
	Field Strength	97.23	92.63	95.92	94.00	83.44	76.45	71.18
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.01
	Bearing-Deg	119.99	119.99	119.99	119.99	119.99	119.99	119.98
	ERP-dBk	28.59	28.59	28.59	28.59	28.59	28.59	28.59
	HAAT-m	300.86	300.86	300.86	300.86	300.86	300.86	300.86
	Field Strength	131.32	128.32	124.09	118.08	107.88	101.29	95.83
	Difference	-34.09	-35.69	-28.17	-24.08	-24.44	-24.84	-24.65

Contour At A Bearing of 150 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.46
	ERP-dBk	-8.34	-9.32	-.96	4.21	5.29	5.29	5.29
	HAAT-m	172.00	172.00	172.00	172.00	161.48	161.48	161.48
	Field Strength	93.93	89.34	92.63	90.70	79.98	73.00	67.73
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	149.99	149.99	149.99	149.99	149.99	149.98	149.98
	ERP-dBk	29.91	29.91	29.91	29.91	29.91	29.91	29.91
	HAAT-m	297.88	297.88	297.88	297.88	297.88	297.87	297.87
	Field Strength	133.31	129.63	125.38	119.36	109.13	102.53	97.06
	Difference	-39.38	-40.29	-32.75	-28.66	-29.15	-29.53	-29.33

Contour At A Bearing of 180 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.93	.62	.47
	ERP-dBk	-8.34	-9.32	-.96	4.21	5.29	5.29	5.29
	HAAT-m	172.00	172.00	172.00	172.00	163.11	163.11	163.11
	Field Strength	93.93	89.34	92.63	90.70	80.07	73.08	67.82
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	180.00	180.00	180.00	180.00	180.00	180.00	180.00
	ERP-dBk	28.69	28.69	28.69	28.69	28.69	28.69	28.69
	HAAT-m	299.51	299.51	299.51	299.51	299.51	299.51	299.51
	Field Strength	132.09	128.42	124.18	118.17	107.95	101.36	95.90
	Difference	-38.16	-39.08	-31.55	-27.47	-27.88	-28.28	-28.08

Contour At A Bearing of 210 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.64	.48
	ERP-dBk	-2.83	-3.82	4.55	9.72	10.79	10.79	10.79
	HAAT-m	172.00	172.00	172.00	172.00	166.51	166.51	166.51
	Field Strength	99.43	94.84	98.13	96.21	85.75	78.77	73.50
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	210.01	210.01	210.01	210.01	210.01	210.02	210.02
	ERP-dBk	23.63	23.63	23.63	23.63	23.63	23.63	23.63
	HAAT-m	302.91	302.91	302.91	302.91	302.91	302.91	302.91
	Field Strength	127.02	123.36	119.14	113.15	102.97	96.40	90.94
	Difference	-27.59	-28.52	-21.01	-16.94	-17.22	-17.63	-17.44

Contour At A Bearing of 240 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.96	.64	.48
	ERP-dBk	1.85	.86	9.23	14.40	15.48	15.48	15.48
	HAAT-m	172.00	172.00	172.00	172.00	166.95	166.95	166.95
	Field Strength	104.12	99.52	102.81	100.89	90.46	83.48	78.21
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.01
	Bearing-Deg	240.01	240.01	240.01	240.01	240.01	240.01	240.02
	ERP-dBk	23.98	23.98	23.98	23.98	23.98	23.98	23.98
	HAAT-m	303.35	303.35	303.35	303.35	303.35	303.35	303.35
	Field Strength	126.71	123.72	119.50	113.51	103.33	96.77	91.30
	Difference	-22.59	-24.20	-16.69	-12.62	-12.87	-13.29	-13.09

Contour At A Bearing of 270 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.64	.48
	ERP-dBk	3.36	2.38	10.74	15.91	16.99	16.99	16.99
	HAAT-m	172.00	172.00	172.00	172.00	166.47	166.47	166.47
	Field Strength	105.63	101.04	104.33	102.40	91.95	84.97	79.69
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Bearing-Deg	270.00	270.00	270.00	270.00	270.00	270.00	270.00
	ERP-dBk	25.12	25.12	25.12	25.12	25.12	25.12	25.12
	HAAT-m	302.88	302.88	302.88	302.88	302.88	302.88	302.88
	Field Strength	127.85	124.86	120.63	114.64	104.46	97.89	92.43
	Difference	-22.22	-23.82	-16.30	-12.24	-12.51	-12.92	-12.74

Contour At A Bearing of 300 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.95	.63	.48
	ERP-dBk	3.01	2.02	10.39	15.56	16.64	16.64	16.64
	HAAT-m	172.00	172.00	172.00	172.00	165.80	165.80	165.80
	Field Strength	105.28	100.68	103.97	102.05	91.56	84.58	79.30
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	19.99
	Bearing-Deg	300.00	300.00	300.00	300.00	300.00	300.00	300.01
	ERP-dBk	24.65	24.65	24.65	24.65	24.65	24.65	24.65
	HAAT-m	302.20	302.20	302.20	302.20	302.20	302.20	302.20
	Field Strength	128.05	124.38	120.16	114.17	103.98	97.41	91.94
	Difference	-22.77	-23.70	-16.19	-12.12	-12.42	-12.83	-12.64

Contour At A Bearing of 330 Degrees From Proposed Station

Proposed	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	20.00
	Tilt (Deg)	6.54	4.92	3.28	1.97	.96	.64	.48
	ERP-dBk	2.73	1.75	10.11	15.28	16.36	16.36	16.36
	HAAT-m	172.00	172.00	172.00	172.00	168.07	168.07	168.07
	Field Strength	105.00	100.41	103.70	101.77	91.40	84.42	79.15
WJEB -DT	Distance-Km	1.50	2.00	3.00	5.00	10.00	15.00	19.99
	Bearing-Deg	330.00	330.00	330.00	330.00	330.01	330.01	330.02
	ERP-dBk	27.95	27.95	27.95	27.95	27.95	27.95	27.95
	HAAT-m	304.47	304.47	304.47	304.47	304.47	304.47	304.47
	Field Strength	131.35	127.70	123.49	117.50	107.34	100.78	95.32
	Difference	-26.35	-27.29	-19.79	-15.73	-15.94	-16.36	-16.17

WLCB 64 dBu & Proposed 36 dBu

