

STEPHEN S. LOCKWOOD, PE, PMP

---

THOMAS M. ECKELS, PE  
THOMAS S. GORTON, PE

---

JAMES B. HATFIELD, PE  
BENJAMIN F. DAWSON III, PE  
ERIK C. SWANSON, PE, PMP  
DAVID J. PINION, PE  
STEPHEN PUMPLE, M.Eng, MBA, PMP  
CONSULTANTS

HATFIELD & DAWSON  
CONSULTING ELECTRICAL ENGINEERS  
9500 GREENWOOD AVE. N.  
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151  
FACSIMILE (206) 789-9834  
E-MAIL hatdaw@hatdaw.com

---

MAURY L. HATFIELD, PE  
(1942-2009)  
PAUL W. LEONARD, PE  
(1925-2011)

**FM Translator K247CR  
Channel 247D at Albany, OR  
To Rebroadcast KTHH(AM) 990 kHz Albany, OR  
June 2021**

**Allocation Study**

The instant application proposes a modification of construction permit for K247CR, to facilitate construction before expiration of the original CP. It is proposed to construct K247CR on an existing tower at the permittee's studio building in Albany.

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study maps demonstrate compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The proposed facility will operate with an ERP of less than 100 watts. Therefore there are no spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

***K245DI Albany***

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station K245DI Albany. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

<b>Protected Station</b>	<b>Distance &amp; Bearing to Proposal</b>	<b>Station ERP and HAAT on that azimuth</b>	<b>Station Field Strength at Proposal</b>	<b>Corresponding Translator Interfering Contour</b>	<b>Distance to Translator Interfering Contour</b>
K245DI	7.89 km 235 deg True	0.196 kW 154 meters	71.3 dBu F(50,50)	111.3 dBu	19.1 meters Free Space

The antenna will be installed at a height of 57 feet above ground. The Bicoastal Media studio building is two stories tall, as are the two adjacent residential homes. Given that the transmitting antenna will be installed at a height of 37 feet (11.3 meters) above the ceiling level of the second floor of these buildings, and taking into consideration the vertical plane pattern of the ERI model CP-11A antenna, the attached Free Space calculations demonstrate that the interference area will not reach occupied areas. There is no population within this contour. Therefore, the proposed facility satisfies the requirements of §74.1204(d) with respect to K245DI.

## =====

## SEARCH PARAMETERS

Channel: 247A 97.3 MHz  
 Latitude: 44 36 50.7 (NAD83)  
 Longitude: 123 5 56.8  
 Safety Zone: 50 km  
 Job Title: K247CR ALBANY

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KCRF-FM LIC	LINCOLN CITY OR	BLH-20010827AAA	244C1 96.7	19.500 266.0	44 45 21.4 124 3 1.4	282.2	77.05 2.05	75 CLOSE
K244FG LIC	SALEM OR	BLFT-20160502ABV	244D 96.7	0.130 0.0	DA 44 51 13.4 123 7 24.3	355.9	26.70 0.00	0 TRANS
K245DI CP	ALBANY OR	BNPFT-20181030AA	245D 96.9	0.250 0.0	DA 44 39 15.2 123 1 1.7	55.4	7.89 0.00	0 TRANS
K245AA LIC	EUGENE OR	BLFT-19971003TJ	245D 96.9	0.250 0.0	DA 44 0 10.5 123 6 52.3	181.0	67.92 0.00	0 TRANS
KYCH-FM LIC	PORTLAND OR	BLH-19900821KA	246C 97.1	100.000 386.0	45 29 19.4 122 41 44.3	17.9	102.27 -62.73	165 SHORT
KEPW-LP LIC	EUGENE OR	BLL-20171016ADK	247L1 97.3	0.100 0.0	44 3 9.4 123 6 41.3	180.9	62.40 -4.60	67 SHORT
K247CR CP	ALBANY OR	BNPFT-20171201AK	247D 97.3	0.099 0.0	DA 44 38 46.4 123 16 14.3	284.8	14.07 0.00	0 TRANS
KSHR-FM LIC	COQUILLE OR	BMLH-20141024ABI	247C1 97.3	30.000 261.0	43 14 50.3 124 6 51.3	208.5	172.36 -27.64	200 SHORT
K248BS LIC	NEWBERG OR	BMLFT-20151209AA	248D 97.5	0.065 0.0	45 21 16.4 122 59 26.3	5.9	82.73 0.00	0 TRANS
KSHL LIC	LINCOLN BEACH OR	BLH-20160627AAP	248C2 97.5	7.000 259.0	44 45 23.4 124 2 57.4	282.2 SS	76.97 -29.03	106 SHORT
KNLR LIC	BEND OR	BLH-19850114LW	248C1 97.5	97.000 163.0	44 4 37.4 121 19 53.1	112.4	153.07 20.07	133 CLEAR
K248DN CP	KEIZER OR	BNPFT-20180507AB	248D 97.5	0.250 0.0	DA 44 59 49.4 123 9 16.4	354.2	42.78 0.00	0 TRANS
K248DD LIC	PORTLAND OR	BLFT-20170601ACR	248D 97.5	0.250 0.0	DA 45 27 11.4 122 32 51.3	24.7	102.88 0.00	0 TRANS

=====

SEARCH PARAMETERS

Channel: 247A 97.3 MHz Page 2

Latitude: 44 36 50.7 (NAD83)

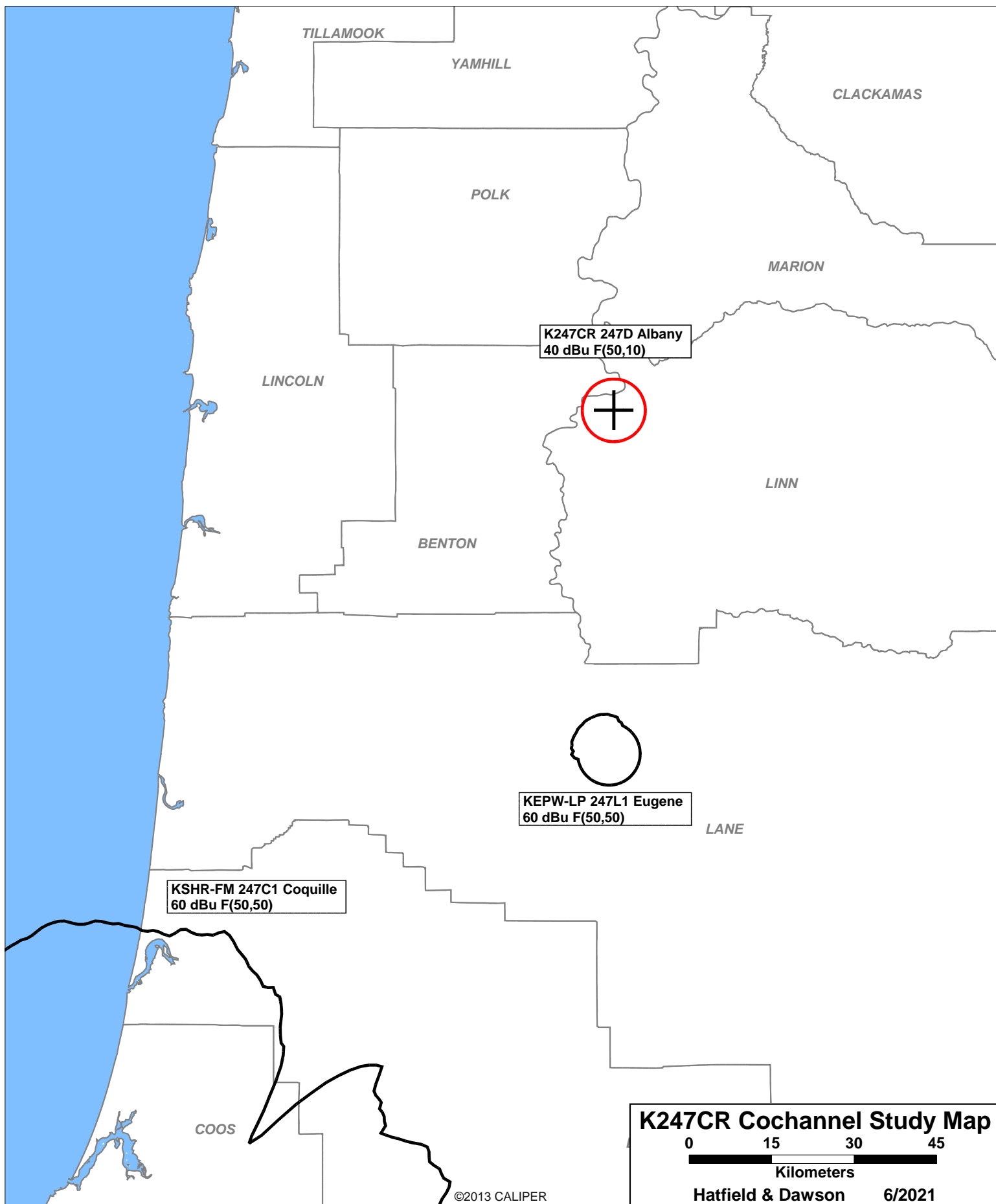
Longitude: 123 5 56.8

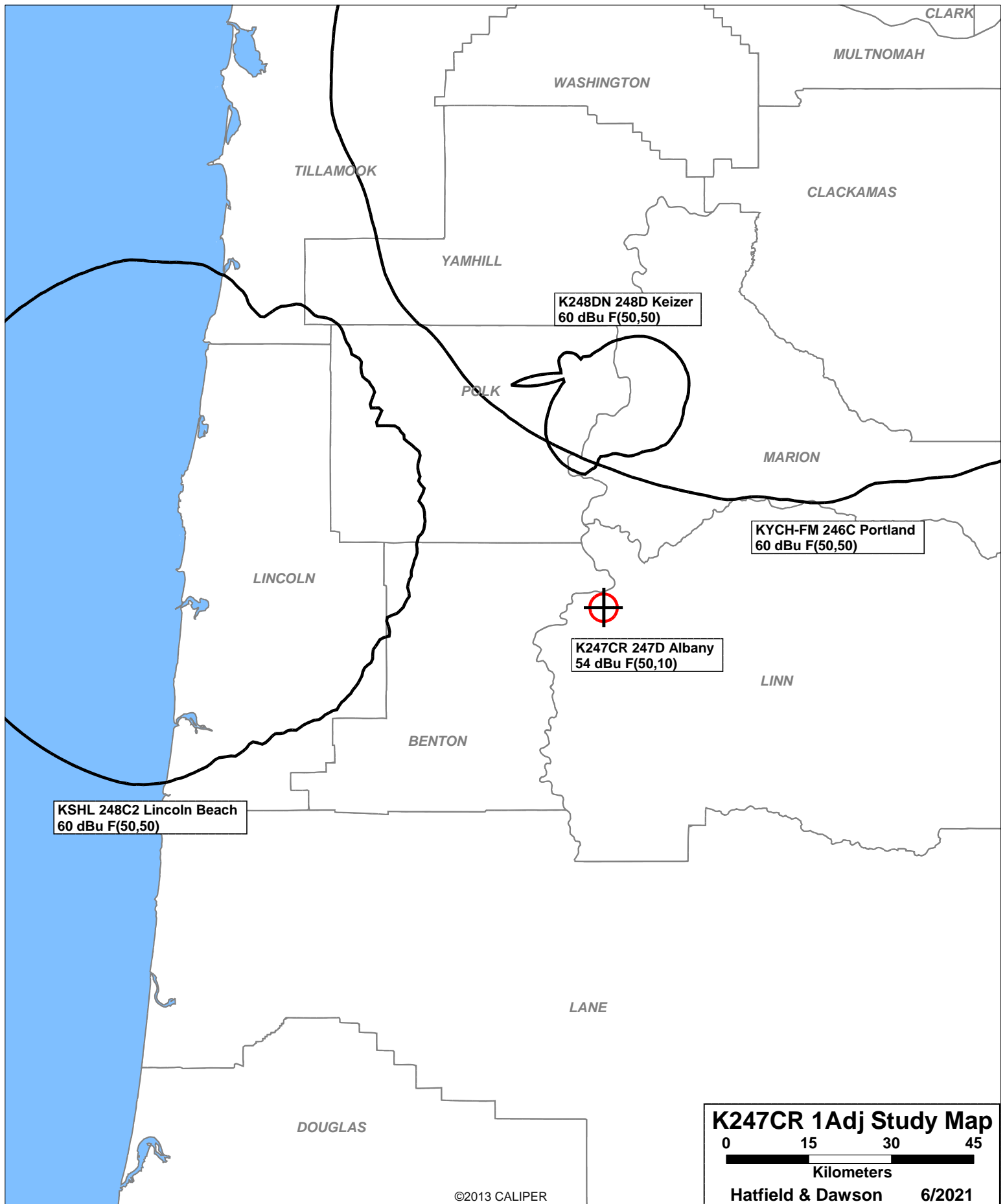
Safety Zone: 50 km

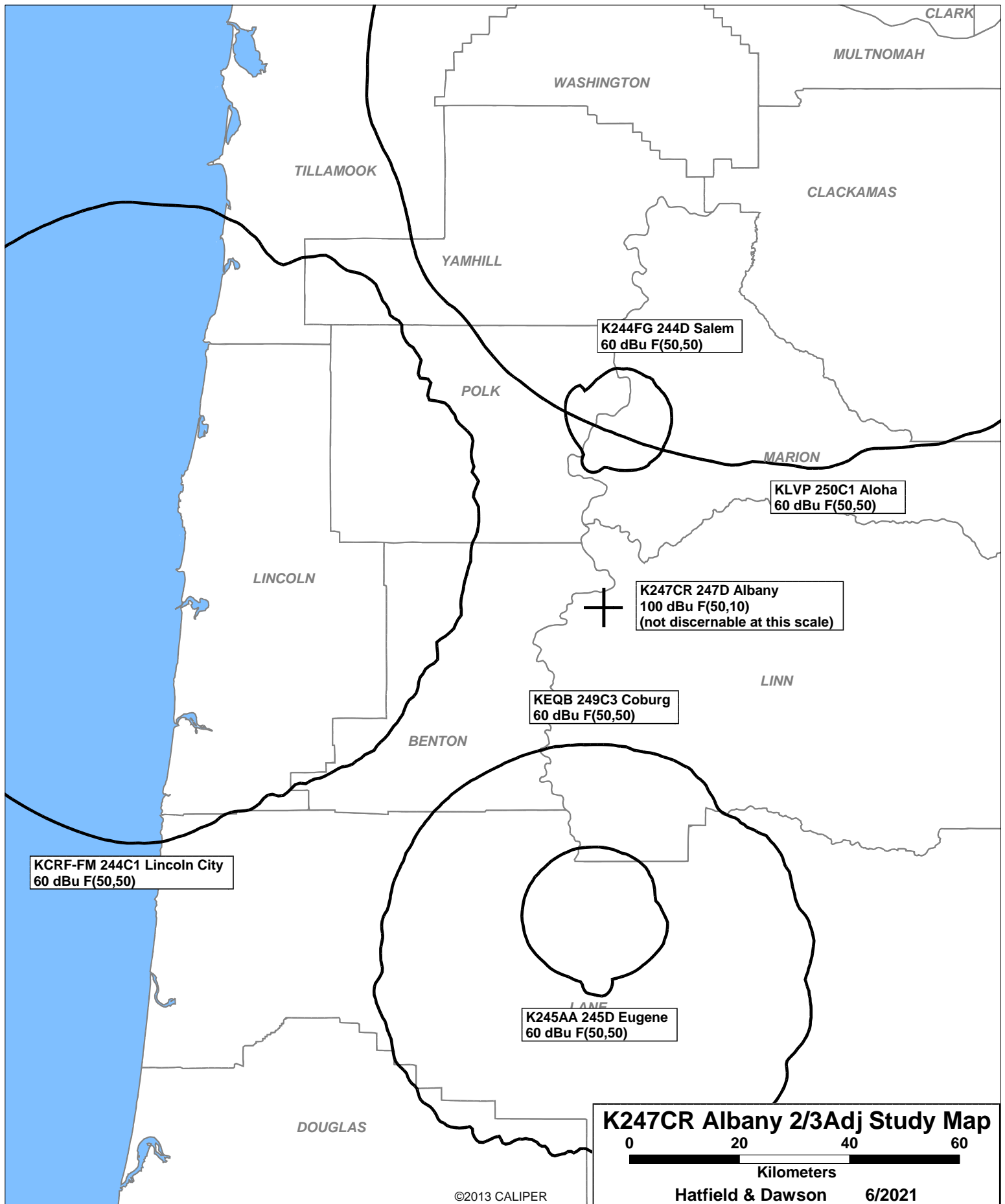
Job Title: K247CR ALBANY

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KEQB	COBURG		249C3	3.200	44 0 6.4	181.0	68.05	42
LIC	OR BLH-20160411AAP		97.7	284.0	123 6 51.3	SS	26.05	CLEAR
KLVP	ALOHA		250C1	54.000	45 29 19.4	17.9	102.27	75
LIC	OR BLED-20150929ACF		97.9	387.0	122 41 44.3		27.27	CLEAR
KHPE	ALBANY		300C	100.000	44 38 45.4	284.7	14.09	29
LIC	OR BLH-5427		107.9	354.0	123 16 15.3		-14.91	SHORT

===== END OF FM SPACING STUDY FOR CHANNEL 247 =====







## K247CR Free Space Interference Area Calculator Interference Area to K245DI

Antenna Height: 11.3 meters AGL  
 Contour Level: 111.3 dBu equals 0.4 V/m  
 ERP in Watts: 1 Watts

Maximum distance  
 to interfering contour is: 62.6 feet equals 19.1 meters

Antenna: CP-11A

Depression Angle (degrees)	ERI CP-11A Relative Field	Adjusted ERP (Watts)	Free Space Distance To 111.3 dBu Contour Along the depression angle	Horizontal Distance (meters)	Contour Above Ceiling (meters)	
-90	0.100	0.0	1.9 meters	0	9.4	(Straight down)
-89	0.116	0.0	2.2	0.0	9.1	
-88	0.131	0.0	2.5	0.1	8.8	
-87	0.147	0.0	2.8	0.1	8.5	
-86	0.163	0.0	3.1	0.2	8.2	
-85	0.178	0.0	3.4	0.3	7.9	
-84	0.194	0.0	3.7	0.4	7.6	
-83	0.210	0.0	4.0	0.5	7.3	
-82	0.225	0.1	4.3	0.6	7.0	
-81	0.241	0.1	4.6	0.7	6.8	
-80	0.256	0.1	4.9	0.8	6.5	
-79	0.272	0.1	5.2	1.0	6.2	
-78	0.287	0.1	5.5	1.1	5.9	
-77	0.302	0.1	5.8	1.3	5.7	
-76	0.318	0.1	6.1	1.5	5.4	
-75	0.333	0.1	6.4	1.6	5.2	
-74	0.348	0.1	6.6	1.8	4.9	
-73	0.363	0.1	6.9	2.0	4.7	
-72	0.378	0.1	7.2	2.2	4.4	
-71	0.393	0.2	7.5	2.4	4.2	
-70	0.408	0.2	7.8	2.7	4.0	
-69	0.423	0.2	8.1	2.9	3.8	
-68	0.437	0.2	8.3	3.1	3.6	
-67	0.452	0.2	8.6	3.4	3.4	
-66	0.466	0.2	8.9	3.6	3.2	
-65	0.480	0.2	9.2	3.9	3.0	
-64	0.495	0.2	9.4	4.1	2.8	
-63	0.509	0.3	9.7	4.4	2.6	
-62	0.523	0.3	10.0	4.7	2.5	
-61	0.536	0.3	10.2	5.0	2.4	
-60	0.550	0.3	10.5	5.2	2.2	
-59	0.564	0.3	10.8	5.5	2.1	
-58	0.577	0.3	11.0	5.8	2.0	
-57	0.590	0.3	11.3	6.1	1.9	
-56	0.603	0.4	11.5	6.4	1.8	
-55	0.616	0.4	11.8	6.7	1.7	
-54	0.629	0.4	12.0	7.1	1.6	
-53	0.642	0.4	12.3	7.4	1.5	
-52	0.654	0.4	12.5	7.7	1.5	
-51	0.666	0.4	12.7	8.0	1.4	
-50	0.679	0.5	13.0	8.3	1.4	
-49	0.690	0.5	13.2	8.6	1.4	



-48	0.702	0.5	13.4	9.0	1.3
-47	0.714	0.5	13.6	9.3	1.3
-46	0.725	0.5	13.8	9.6	1.3
-45	0.736	0.5	14.0	9.9	1.4
-44	0.747	0.6	14.3	10.3	1.4
-43	0.758	0.6	14.5	10.6	1.4
-42	0.769	0.6	14.7	10.9	1.5
-41	0.779	0.6	14.9	11.2	1.5
-40	0.789	0.6	15.1	11.5	1.6
-39	0.799	0.6	15.3	11.9	1.7
-38	0.809	0.7	15.4	12.2	1.8
-37	0.819	0.7	15.6	12.5	1.9
-36	0.828	0.7	15.8	12.8	2.0
-35	0.837	0.7	16.0	13.1	2.1
-34	0.846	0.7	16.1	13.4	2.3
-33	0.855	0.7	16.3	13.7	2.4
-32	0.863	0.7	16.5	14.0	2.6
-31	0.871	0.8	16.6	14.3	2.7
-30	0.879	0.8	16.8	14.5	2.9
-29	0.887	0.8	16.9	14.8	3.1
-28	0.895	0.8	17.1	15.1	3.3
-27	0.902	0.8	17.2	15.3	3.5
-26	0.909	0.8	17.4	15.6	3.7
-25	0.916	0.8	17.5	15.8	3.9
-24	0.922	0.9	17.6	16.1	4.1
-23	0.928	0.9	17.7	16.3	4.4
-22	0.934	0.9	17.8	16.5	4.6
-21	0.940	0.9	17.9	16.8	4.9
-20	0.946	0.9	18.1	17.0	5.1
-19	0.951	0.9	18.2	17.2	5.4
-18	0.956	0.9	18.2	17.4	5.7
-17	0.961	0.9	18.3	17.5	5.9
-16	0.965	0.9	18.4	17.7	6.2
-15	0.969	0.9	18.5	17.9	6.5
-14	0.973	0.9	18.6	18.0	6.8
-13	0.977	1.0	18.6	18.2	7.1
-12	0.980	1.0	18.7	18.3	7.4
-11	0.983	1.0	18.8	18.4	7.7
-10	0.986	1.0	18.8	18.5	8.0
-9	0.989	1.0	18.9	18.6	8.3
-8	0.991	1.0	18.9	18.7	8.7
-7	0.993	1.0	19.0	18.8	9.0
-6	0.995	1.0	19.0	18.9	9.3
-5	0.997	1.0	19.0	19.0	9.6
-4	0.998	1.0	19.0	19.0	10.0
-3	0.999	1.0	19.1	19.0	10.3
-2	0.999	1.0	19.1	19.1	10.6
-1	1.000	1.0	19.1	19.1	11.0
0	1.000	1.0	19.1	19.1	11.3

(Horizontal)

## Facilities Proposed

The proposed operation will be on Channel 247D (97.3 MHz) with an effective radiated power of 0.001 kilowatts. Operation is proposed with a single-bay antenna which will be side-mounted on an existing tower at the Bicoastal studios in Albany.

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.

DETERMINATION Results							
PASS SLOPE(50:1): NO FAA REQ-RWY 10499 MTRS OR LESS & 3822.80 MTRS (3.8228 ) KM AWAY							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	44-38-1.00N	123-03-34.00W	ALBANY MUNI	LINN ALBANY, OR	68.8	915.60000000000002
Your Specifications							
NAD83 Coordinates							
Latitude						44-36-50.7 north	
Longitude						123-05-56.8 west	
Measurements (Meters)							
Overall Structure Height (AGL)						21.3	
Support Structure Height (AGL)						21.3	
Site Elevation (AMSL)						70.1	
Structure Type							
LTOWER - Lattice Tower							

## RF Exposure Calculations

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.

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

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

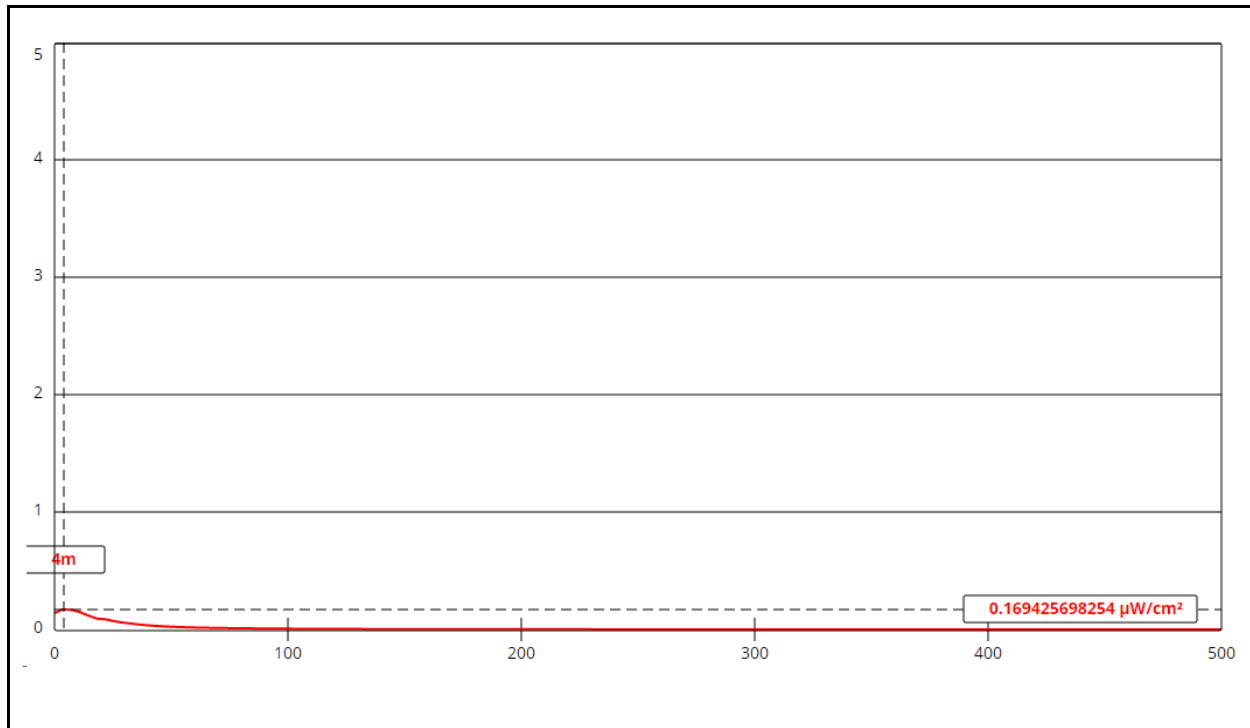
*D* is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern for the ERI model CP-11A antenna proposed for use. The highest calculated ground level power density occurs at a distance of 4 meters from the base of the antenna support structure. At this point the power density is calculated to be  $0.2 \mu\text{W}/\text{cm}^2$ , which is 0.1% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments).

The antenna will be installed 50 feet above the building rooftop. The highest calculated rooftop-level power density occurs at a distance of 3 meters from the base of the antenna support structure. At this point the power density is calculated to be  $0.5 \mu\text{W}/\text{cm}^2$ , which is 0.25% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments).

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 exposure in excess of FCC guidelines.



## Ground-Level RF Exposure

OET FMModel

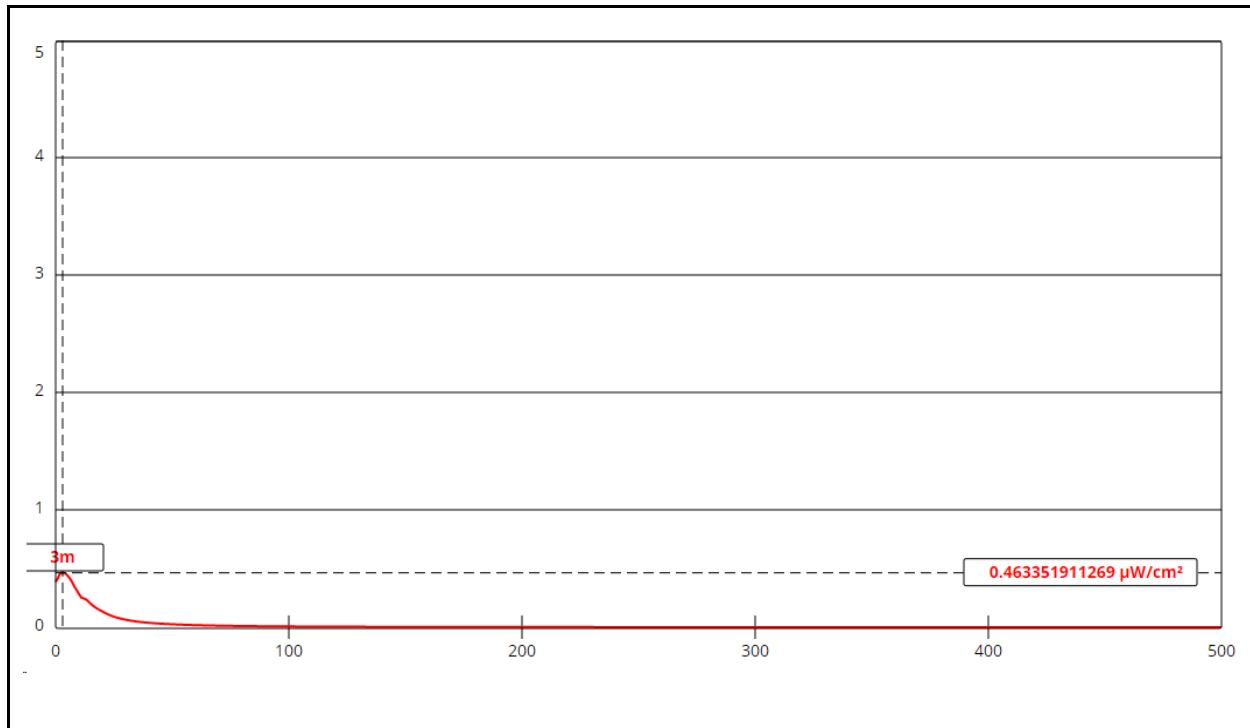
### K247CR Albany

Antenna Type: ERI CP-11A (Type 1)  
No. of Elements: 1  
Element Spacing: 1 wavelength

Distance: 500 meters  
Horizontal ERP: 1 watt  
Vertical ERP: 1 watt

Antenna Height: 21.3 meters AGL

Maximum Calculated Power Density is 0.2  $\mu\text{W}/\text{cm}^2$  at 4 meters from the antenna structure.



## Rooftop-Level RF Exposure

OET FMModel

### K247CR Albany

Antenna Type: ERI CP-11A (Type 1)  
No. of Elements: 1  
Element Spacing: 1 wavelength

Distance: 500 meters  
Horizontal ERP: 1 watt  
Vertical ERP: 1 watt

Antenna Height: 11.3 meters above the rooftop

Maximum Calculated Power Density is 0.5  $\mu\text{W}/\text{cm}^2$  at 3 meters from the antenna structure.

