February 2017
FM Translator K266CH
Cathedral City, California Channel 265D
Allocation Study

250 Mile Window Application
This application is being filed as a modification of a "250 Mile Window" construction permit, which modified an authorized FM translator for use with an AM station.

The applicant is also the licensee of the AM station.

Allocation Study
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 attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

KPSI-FM 263B1 Palm Springs
The proposed translator transmitter site is located within the 57 dBu protected contour of second-adjacent channel station KPSI-FM 263B1 Palm Springs. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
KPSI-FM 263B1	9.02 km 194 deg True	25 kW 443 meters	98.3 dBu F(50,50)	138.3 dBu	7.4 meters Free Space

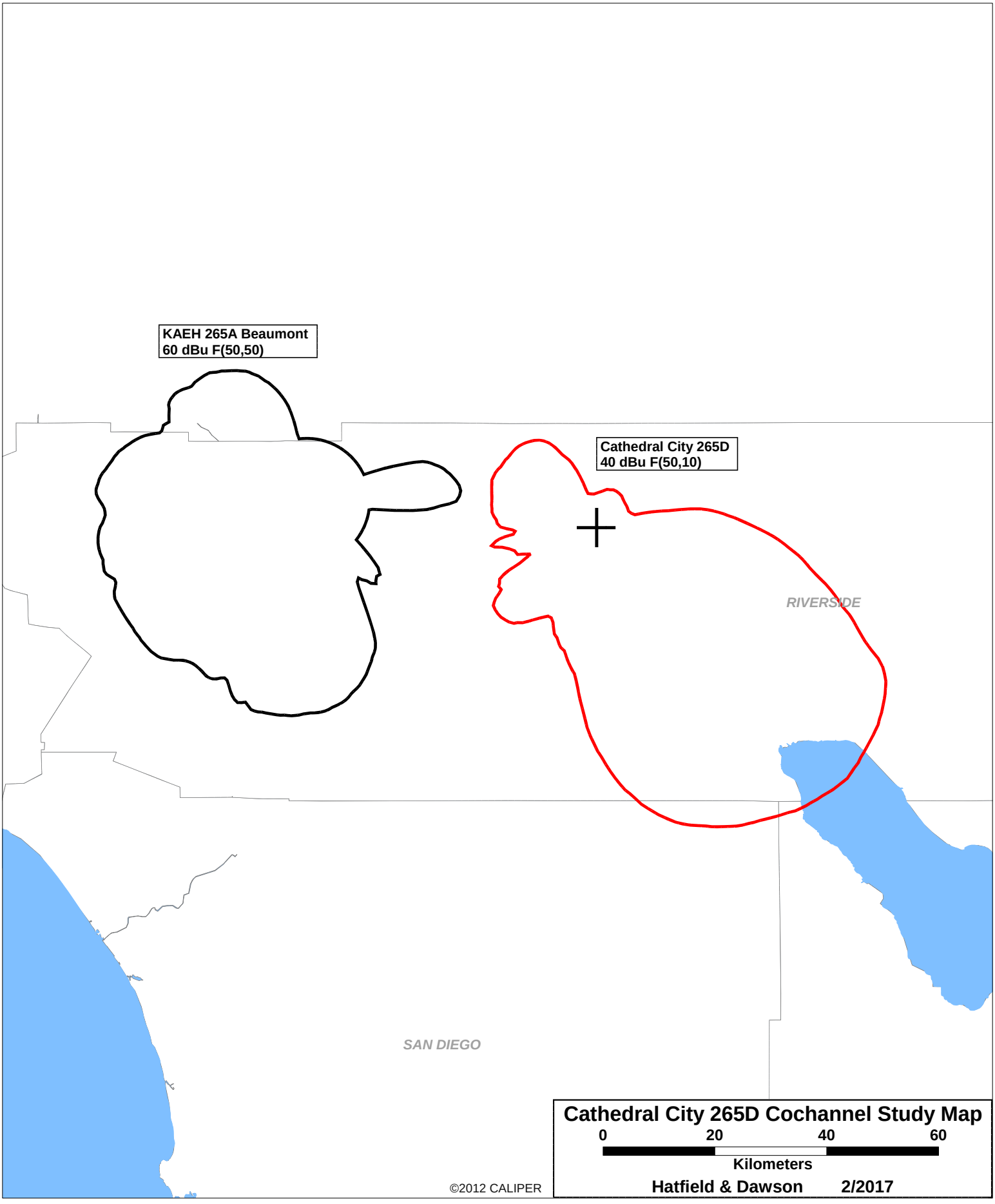
The 138.3 dBu contour from the proposed facility extends only 7.4 meters from the antenna. There is no population within this contour, as can be seen on the attached transmitter site map. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KPSI-FM.

US-Mexico FM Agreement
The proposed facility will be located in excess of 125 kilometers from the common border with Mexico, and thus is permitted to operate with an ERP in excess of 50 watts per Section 2.1.5 of the US-Mexico FM Agreement. The attached allocation study map demonstrates that the proposed 60 dBu contour does not extend more than 8.7 kilometers beyond the 125 km line, and indeed does not even cross the 125 km line.

SEARCH PARAMETERS FM Database Date: 170203
Channel: 265A 100.9 MHz
Latitude: 33 52 0
Longitude: 116 26 0
Safety Zone: 50 km
Job Title: EDOM HILL 265

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)		Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KLRD	YUCAIPA		211B	0.600	DA	34-03-46	297.3	47.73	15
LIC	CA	BLED-10919AEY	90.1	1045.0		116-53-35		32.73	CLEAR
KVLA-FM	COACHELLA		212A	0.340	DA	33-48-08	110.4	20.57	10
LIC	CA	BLED-41108AAK	90.3	175.0		116-13-30		10.57	CLEAR
KPSI-FM	PALM SPRINGS		263B1	25.000		33-56-44	14.1	9.02	48
LIC	CA	BLH-910314KA	100.5	37.0		116-24-34		-38.98	SHORT
K264CI	CORONA		264D	0.013	DA	33-49-45	268.2	111.65	0
LIC	CA	BLFT-60706ABG	100.7	698.0		117-38-20		0.00	TRANS
KATJ-FM	GEORGE		264A	0.260		34-36-38	316.7	114.08	72
LIC	CA	BLH-921106KA	100.7	472.0		117-17-18		42.08	CLEAR
KFMB-FM	SAN DIEGO		264B	30.000		32-50-17	213.8	137.04	113
LIC	CA	BMLH-10717AAF	100.7	189.0		117-14-57		24.04	CLEAR
KAEH	BEAUMONT		265A	1.500		33-54-29	275.2	52.24	115
LIC	CA	BLH-00330ACC	100.9	146.0		116-59-45		-62.76	SHORT
NEW	CATHEDRAL CITY		265L1	0.050		33-44-18	130.8	21.84	0
APP	CA	BNPL-31113ABD	100.9	-37.2		116-15-16		0.00	LPFM
NOTE: DISMISSED BY LETTER DATED 2/01/2017									
K266BX	CACTUS CITY		266D	0.010	DA	33-39-20	119.4	47.64	0
LIC	CA	BMLFT-61118ABS	101.1	0.0		115-59-08		0.00	TRANS
K266BX	CACTUS CITY		266D	0.010	DA	33-39-20	119.4	47.64	0
APP	CA	BPFT-70130AJX	101.1	540.0		115-59-08		0.00	TRANS
K266CH	CATHEDRAL CITY		266D	0.007		33-52-00	0.0	0.00	0
CP MOD	CA	BMPFT-61114ABU	101.1	415.0		116-26-00		0.00	TRANS
DKBFR	DESERT CENTER		266A	1.000		33-43-10	99.4	97.54	72
LIC	CA	BLH-31210BXF	101.1	-110.0		115-23-42	SS	25.54	CLEAR
DKBFR	DESERT CENTER		266A	0.000		33-45-35	96.8	97.15	72
VAC	CA	-	101.1	0.0		115-23-31		25.15	CLEAR
KRTH	LOS ANGELES		266B	51.000		34-13-38	285.4	156.03	113
LIC	CA	BMLH-71015AJG	101.1	955.0		118-04-00		43.03	CLEAR
KATY-FM	IDYLLWILD		267A	1.550		33-43-31	241.8	33.21	31
LIC	CA	BMLH-71002ACQ	101.3	200.0		116-44-58		2.21	CLOSE
K268AH	PALM SPRINGS		268D	0.010		33-52-14	88.6	19.05	0
LIC	CA	BLFT-61011AAL	101.5	677.0		116-13-39		0.00	TRANS

═══ END OF FM SPACING STUDY FOR CHANNEL 265 ═══


KAEH 265A Beaumont
60 dBu F(50,50)
Cathedral City 265D
40 dBu F(50,10)
RIVERSIDE
SAN DIEGO
Cathedral City 265D Cochannel Study Map
0
20
40
60
Kilometers
Hatfield & Dawson 2/2017
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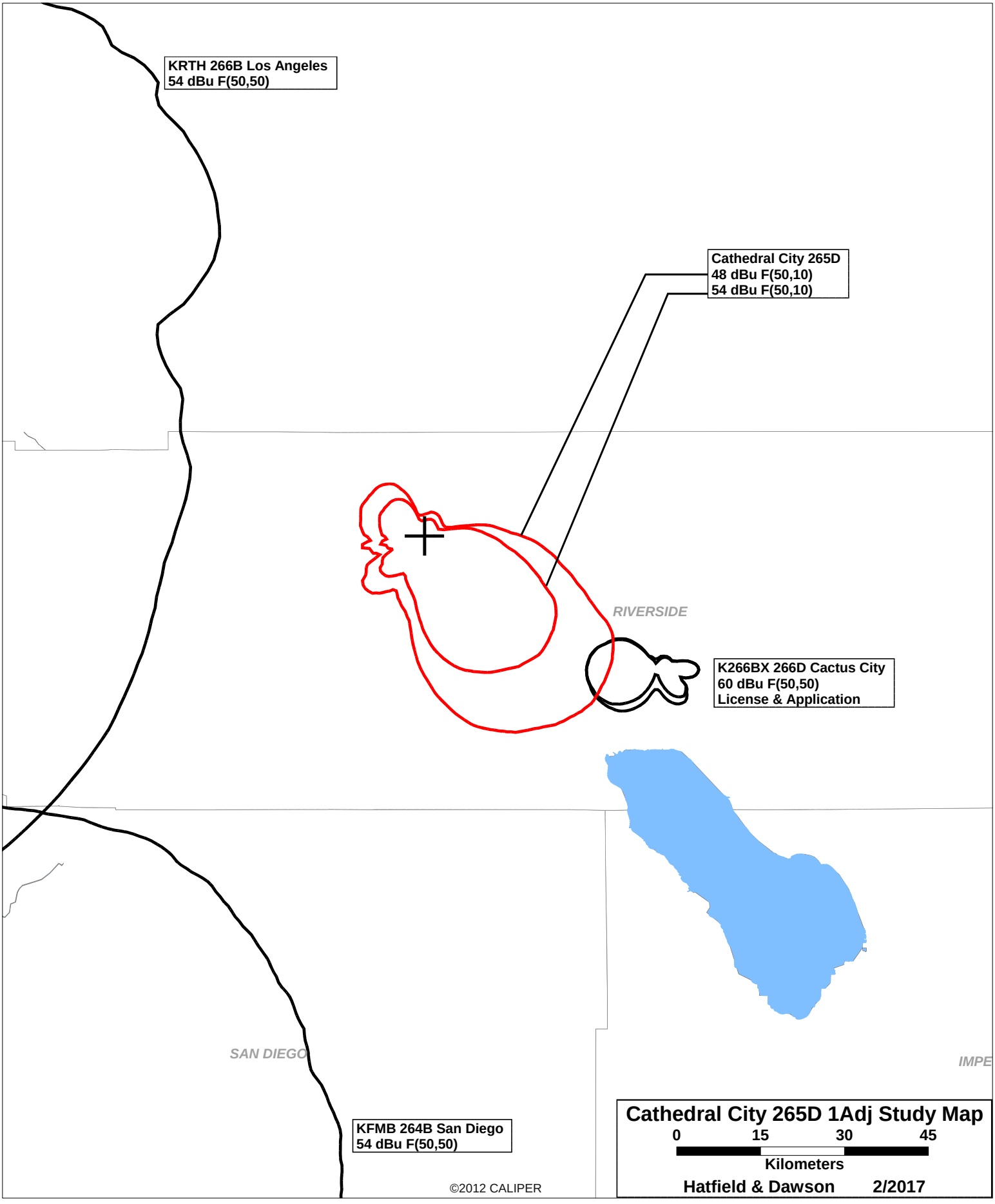
KRTH 266B Los Angeles
54 dBu F(50,50)
Cathedral City 265D
48 dBu F(50,10)
54 dBu F(50,10)
RIVERSIDE
K266BX 266D Cactus City
60 dBu F(50,50)
License & Application
SAN DIEGO
IMPE
KFMB 264B San Diego
54 dBu F(50,50)
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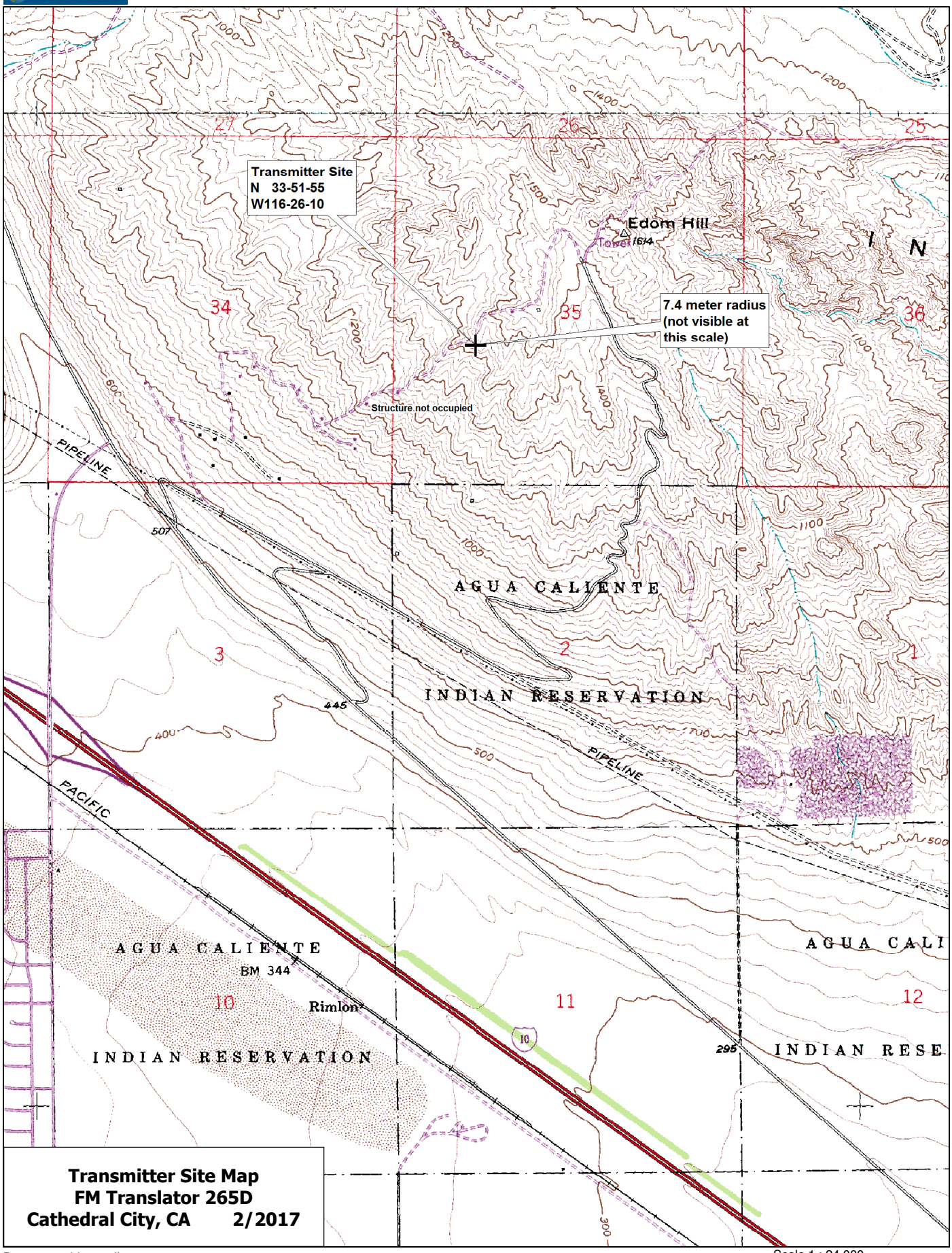
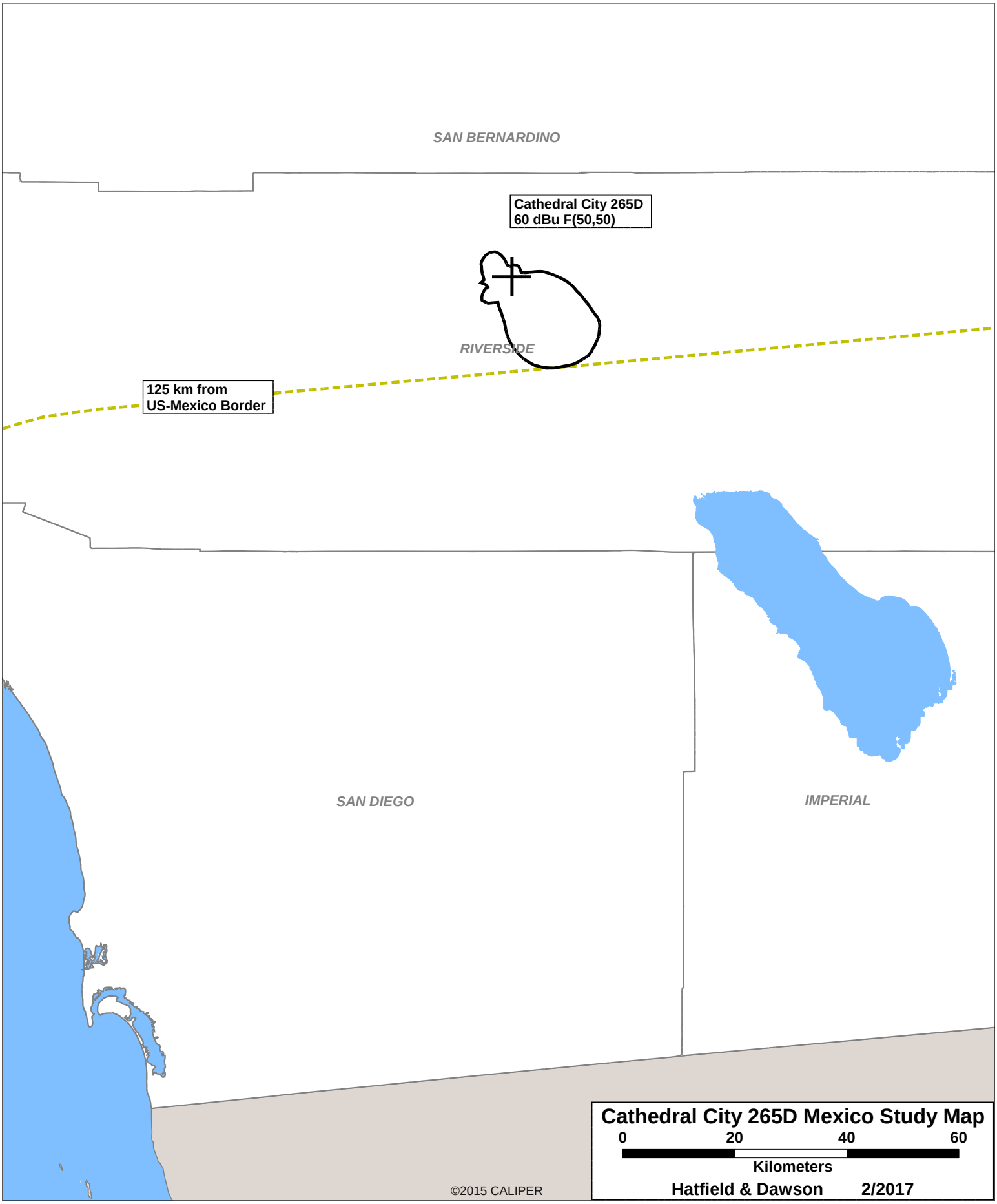
Cathedral City 265D 1Adj Study Map
0 15 30 45
Kilometers
Hatfield & Dawson 2/2017



TN
MN (11.6°E)

Scale 1 : 24,000
1 cm = 240.0 m
Data Zoom 13-1


SAN BERNARDINO
Cathedral City 265D
60 dBu F(50,50)
RIVERSIDE
125 km from
US-Mexico Border
SAN DIEGO
IMPERIAL
Cathedral City 265D Mexico Study Map
0
20
40
60
Kilometers
Hatfield & Dawson 2/2017
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February 2017
FM Translator K266CH
Cathedral City, California Channel 265D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 266D (101.1 MHz) with an effective radiated power of 75 watts. Operation is proposed with an antenna to be mounted on a metal pole at the Edom Hill communications site.

The proposed antenna support structure will 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(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7712.65 MTRS (7.71269 KM) AWAY							
Type	**C/R**	**Latitude**	**Longitude**	**Name**	**Address**	**Lowest Elevation (m)**	**Runway Length (m)**
AIRP	R	33-50-7.00N	116-30-35.00W	PALM SPRINGS INTL	RIVERSIDE PALM SPRINGS, CA	121.4	3048.0
PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7919.61 MTRS (7.9196 KM) AWAY							
Type	**C/R**	**Latitude**	**Longitude**	**Name**	**Address**	**Lowest Elevation (m)**	**Runway Length (m)**
AIRP	R	33-50-26.00N	116-31-3.00W	PALM SPRINGS INTL	RIVERSIDE PALM SPRINGS, CA	121.4	3048.0

Your Specifications	
NAD83 Coordinates	
Latitude	33-52-00.5 north
Longitude	116-26-02.8 west
Measurements (Meters)	
Overall Structure Height (AGL)	23
Support Structure Height (AGL)	23
Site Elevation (AMSL)	479
Structure Type	
POLE - Any type of Pole	

TOWAIR Results

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.

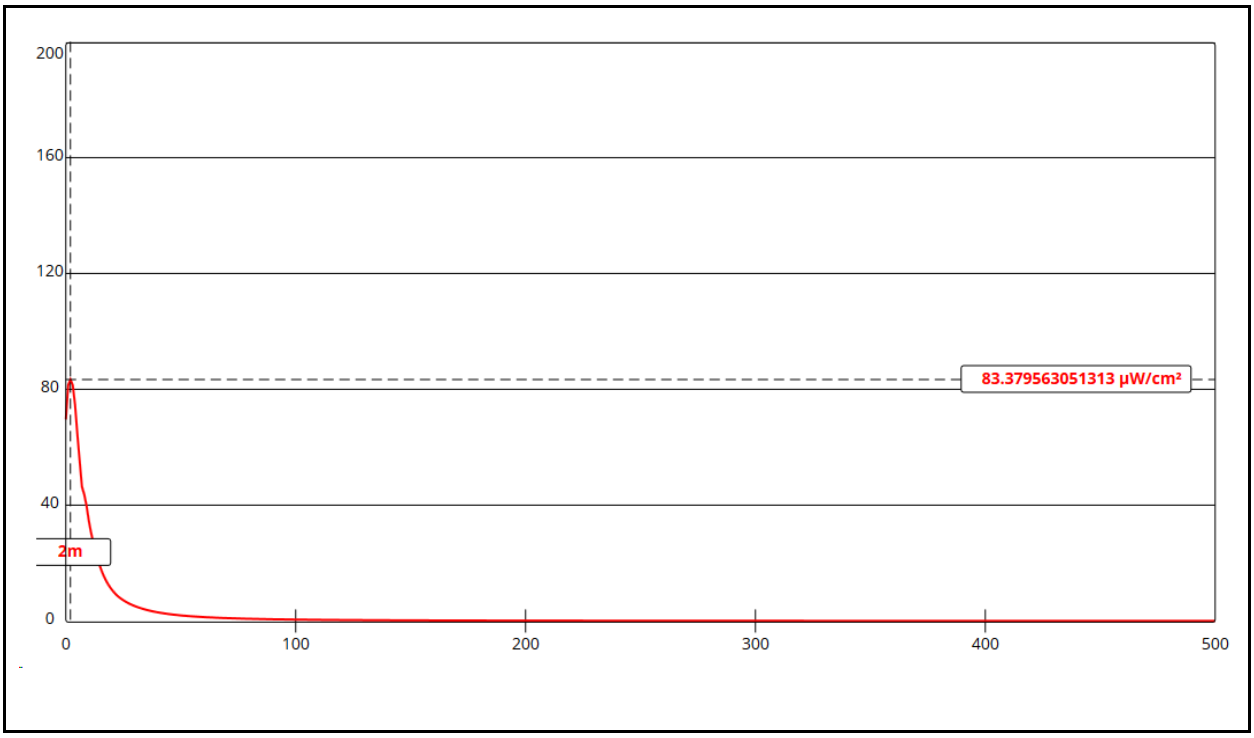
D is the distance in meters from the center of radiation to the calculation point.

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.

Since the FCC's FMModel software does not include an element pattern for the Scala CA5CP antenna to be used, calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the "worst case" element pattern. The highest calculated ground level power density occurs at a distance of 2 meters from the base of the antenna support structure. At this point the power density is calculated to be 83.4 μW/cm².

The Scala CA5CP antenna, however, has a much more favorable vertical plane pattern than does the Type 1 element pattern in FMModel. Separate calculations performed using the manufacturer's vertical plane pattern for this antenna show that the highest calculated ground level power density occurs at a distance of 9 meters from the base of the antenna support structure. At this point the power density is calculated to be 18.2 μW/cm².

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**

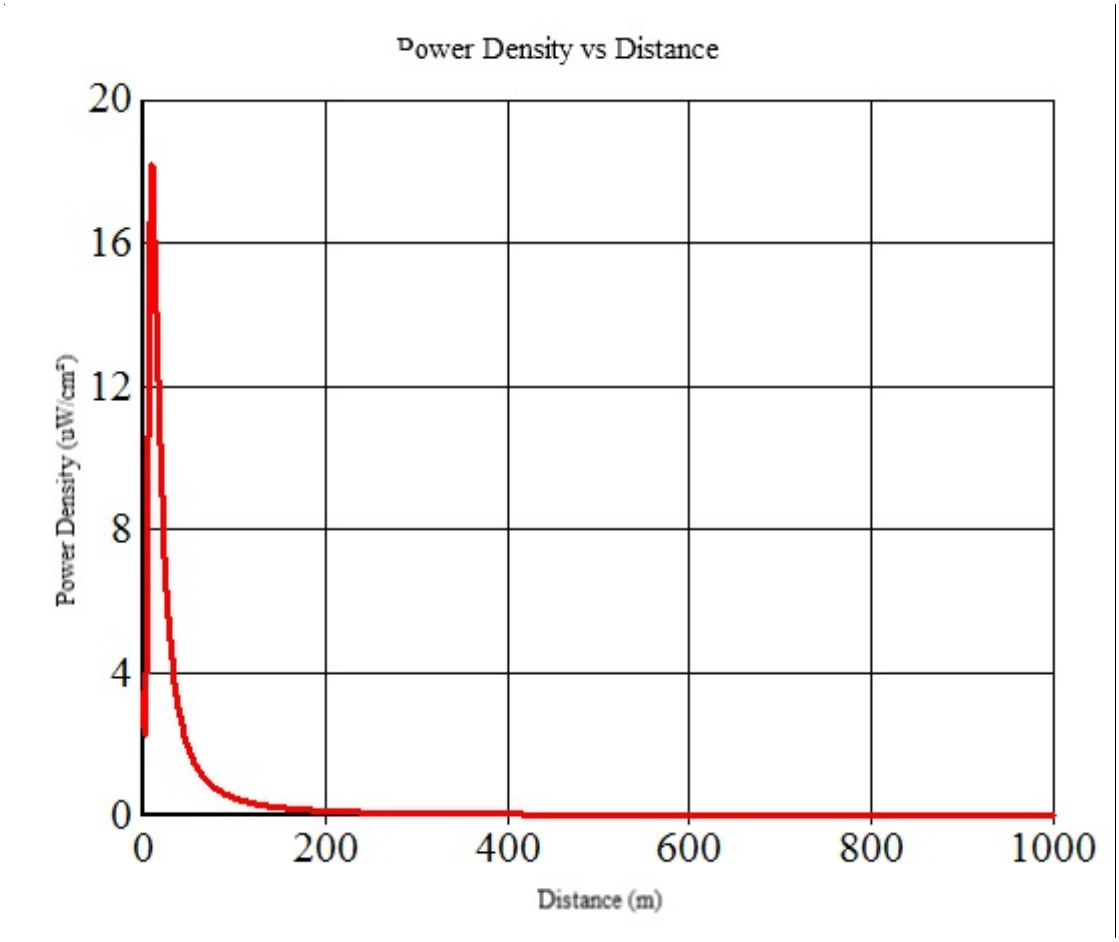
Cathedral City 265D

Antenna Type:	Scala CA5CP (Type 1 assumed)
No. of Elements:	1
Element Spacing:	1.0 wavelength
Distance:	1000 meters
Horizontal ERP:	75 W
Vertical ERP:	75 W
Antenna Height:	8 meters AGL

Maximum Calculated Power Density is 83.4 µW/cm^2 at 2 meters from the antenna structure.
But see following page with calculations using manufacturer's vertical plane pattern.

Cathedral City 265D
Ground-Level Power Density Calculations
Using Manufacturer's Vertical Plane Pattern

Antenna	CA5FMCP			
ERP	75	Watts H (avg)		
	75	Watts V (avg)		
Antenna AGL	8	meters less 2m is	6	meters above the reference plane
Calculated Maximum is	18.18	uW/cm² at	9	meters from the tower



Distance From Tower (meters)	Hypotenuse (meters)	Depression Angle (degrees)	Interp Rel Field	Adjusted ERP (watts)	Power Density uW/cm²
0	6.00	90.00	0.157	3.7	3.43
1	6.08	80.54	0.143	3.0	2.75
2	6.32	71.57	0.134	2.7	2.25
3	6.71	63.43	0.157	3.7	2.73
4	7.21	56.31	0.232	8.0	5.17
5	7.81	50.19	0.326	15.9	8.73
6	8.49	45.00	0.423	26.8	12.45
7	9.22	40.60	0.515	39.8	15.66
8	10.00	36.87	0.591	52.3	17.48
9	10.82	33.69	0.652	63.7	18.18
10	11.66	30.96	0.701	73.6	18.09
11	12.53	28.61	0.740	82.1	17.47
12	13.42	26.57	0.772	89.3	16.57
13	14.32	24.78	0.799	95.8	15.61

14	15.23	23.20	0.821	101.2	14.57
15	16.16	21.80	0.841	106.0	13.57
16	17.09	20.56	0.858	110.5	12.64
17	18.03	19.44	0.872	114.0	11.71
18	18.97	18.43	0.881	116.4	10.81
19	19.92	17.53	0.890	118.7	9.99
20	20.88	16.70	0.898	121.0	9.27
21	21.84	15.95	0.906	123.0	8.62
22	22.80	15.26	0.912	124.9	8.02
23	23.77	14.62	0.918	126.3	7.47
24	24.74	14.04	0.922	127.4	6.96
25	25.71	13.50	0.926	128.6	6.50
26	26.68	12.99	0.930	129.7	6.09
27	27.66	12.53	0.933	130.7	5.71
28	28.64	12.09	0.936	131.5	5.36
29	29.61	11.69	0.939	132.4	5.04
30	30.59	11.31	0.943	133.3	4.76
31	31.58	10.95	0.945	134.0	4.49
32	32.56	10.62	0.948	134.7	4.25
33	33.54	10.30	0.950	135.3	4.02
34	34.53	10.01	0.952	135.9	3.81
35	35.51	9.73	0.954	136.4	3.61
36	36.50	9.46	0.955	136.9	3.43
37	37.48	9.21	0.957	137.3	3.26
38	38.47	8.97	0.958	137.7	3.11
39	39.46	8.75	0.960	138.1	2.96
40	40.45	8.53	0.961	138.5	2.83
41	41.44	8.33	0.962	138.8	2.70
42	42.43	8.13	0.963	139.2	2.58
43	43.42	7.94	0.964	139.5	2.47
44	44.41	7.77	0.965	139.8	2.37
45	45.40	7.59	0.966	140.1	2.27
46	46.39	7.43	0.967	140.4	2.18
47	47.38	7.28	0.968	140.7	2.09
48	48.37	7.13	0.969	140.9	2.01
49	49.37	6.98	0.970	141.2	1.94
50	50.36	6.84	0.971	141.4	1.86
51	51.35	6.71	0.972	141.6	1.79
52	52.35	6.58	0.973	141.9	1.73
53	53.34	6.46	0.973	142.1	1.67
54	54.33	6.34	0.974	142.3	1.61
55	55.33	6.23	0.975	142.5	1.56
56	56.32	6.12	0.975	142.7	1.50
57	57.31	6.01	0.976	142.9	1.45
58	58.31	5.91	0.977	143.1	1.41
59	59.30	5.81	0.977	143.2	1.36
60	60.30	5.71	0.978	143.4	1.32