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## **ENGINEERING REPORT:**

**APPLICATION FOR CONSTRUCTION PERMIT  
NEW(FM) CHANNEL 247C3, 97.3 MHz  
Parker, AZ**

**PRESCOTT VALLEY BROADCASTING COMPANY, Inc.**

**April 2007**

Hatfield & Dawson Consulting Engineers

## 1. Purpose of Application

This Engineering Report is part of an application for a Construction Permit for a NEW FM station at Parker, AZ by Prescott Valley Broadcasting Company, Inc. The proposed operation will be on FM Channel 247C3 (97.3 MHz) with an effective radiated power of 25 kilowatts (13.98 dBk) at an antenna height above average terrain of 37 meters. The ERP specified is the maximum for Class C3 facilities at this antenna height, as calculated in accordance with the Commission's Rules.

## 2. Allocation Considerations

The attached spacing study shows that the proposed operation meets the co-channel and adjacent channel spacing requirements for Class C3 stations as prescribed in §73.207 of the Commission's Rules, with the exception of a short-spacing to first-adjacent channel station KMVA-FM, 248C, Dewey-Humboldt, AZ. Processing pursuant to §73.215 of the Commission's Rules is requested with respect to KMVA, and the attached allocation study maps are included to demonstrate the lack of prohibited contour overlap with KMVA.

### 3. Facilities Proposed

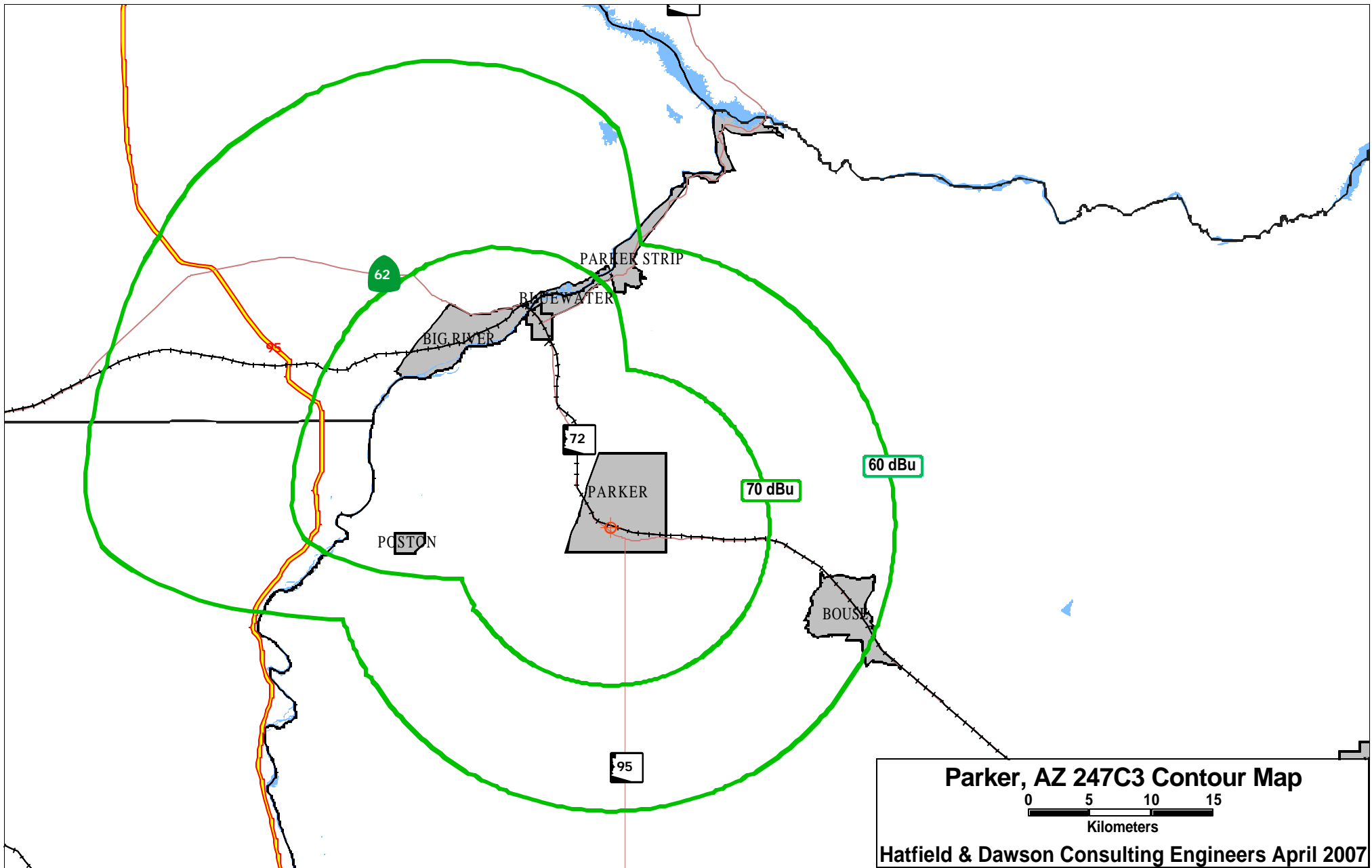
#### a. Facility Description

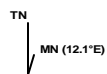
The proposed operation will be on Channel 247C3 (97.3 MHz) with an effective radiated power of 25 kilowatts. Operation is proposed with an 4-element circularly-polarized omni-directional half-wave-spaced antenna. The antenna will be side-mounted on an existing uniform cross-section guyed tower located at 31645 Industrial Ave in Parker.

The FCC Antenna Structure Registration Number for this tower is 1221297.

#### b. Blanketing Contour

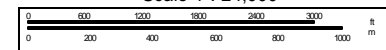
The 115 dBu contour for the proposed facilities extends 1.97 kilometers from the tower, based on the calculation methodology shown in §73.318 of the Commission's Rules. Much of the area within the blanketing contour is populated. The height of the proposed antenna above ground and its vertical radiation characteristics should mitigate any adverse effects to nearby residents or other communications facilities. If such adverse effects occur, the applicant will be responsible for their amelioration as prescribed in §73.318, including receiver-induced intermodulation to facilities in existence or authorized or receivers in use prior to grant of this application.





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Scale 1 : 24,000



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$$1'' = 609.6 \text{ m}$$

Data Zoom 13-1

**April 2007  
Channel 247C3  
Parker, AZ  
NIER Analysis**

**Facilities Proposed**

The proposed operation will be on Channel 247C3 (97.3 MHz) with an effective radiated power of 25 kilowatts. Operation is proposed with a 4-element circularly-polarized omni-directional antenna.

The antenna is to be side-mounted on an existing tower located in Parker, AZ.

**NIER Calculations**

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation apart from the proposed FM facility.

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.

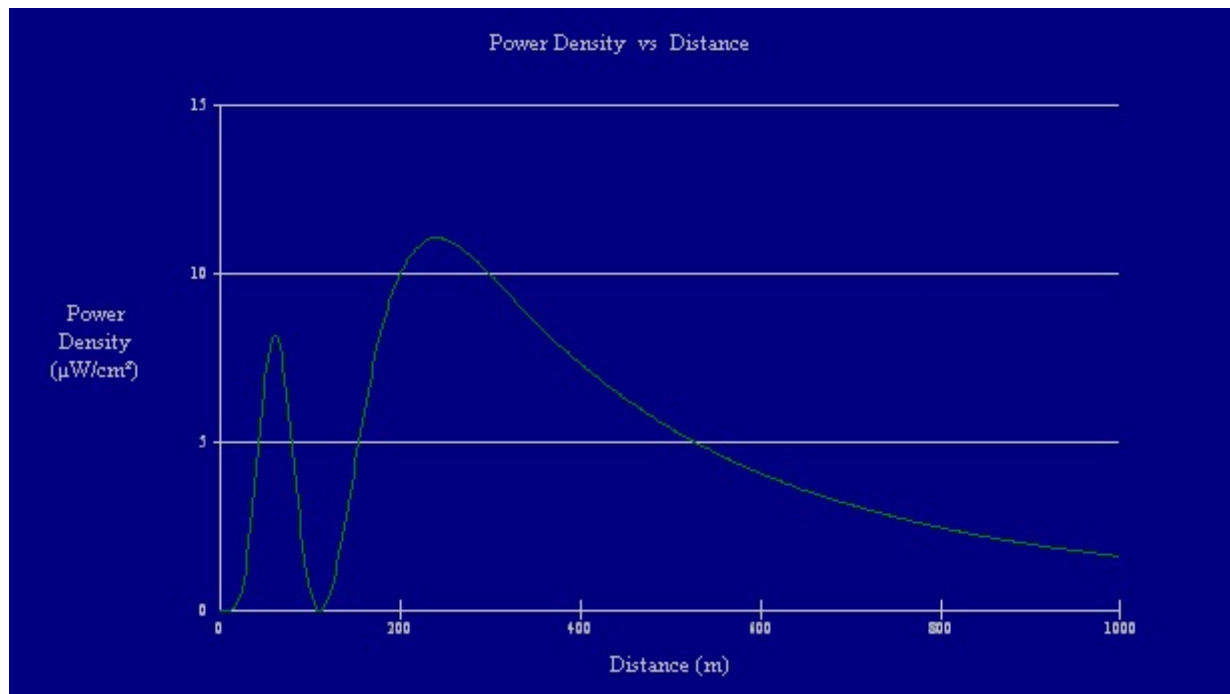
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

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Calculations of the power density produced by the proposed antenna system assume a Type 3 element pattern, which is the element pattern for the PSI FM-4 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 240 meters from the base of the antenna support structure. At this point the power density is calculated to be  $11.1 \mu\text{W}/\text{cm}^2$ , which is 5.6% of the FCC standard for areas accessible to the general public.

Public access to the site is restricted by a locked gate and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

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 radiation in excess of FCC guidelines.



### Ground-Level NIER

### OET FMModel

NEW 247C3 Parker, AZ

Antenna Type: PSI FM-4  
No. of Elements: 4  
Element Spacing: 1/2 wavelength

Distance: 1000 meters  
Horizontal ERP: 25 kW  
Vertical ERP: 25 kW

Antenna Height: 66 meters AGL

Maximum Power Density is 11.1  $\mu\text{W}/\text{cm}^2$  at 240 meters from the antenna structure.

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## SEARCH PARAMETERS

FM Database Date: 070416

Channel: 247C3 97.3 MHz  
 Latitude: 34 0 11  
 Longitude: 114 13 40  
 Safety Zone: 100 km  
 Job Title: 247C3 Parker

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K244CV LIC	KINGMAN AZ	BLFT-890724TA	244D 96.7	0.084 305.0	DA 35-11-52 114-02-28	7.3	133.63 0.00	0 TRANS
KRCY-FM LIC	LAKE HAVASU CITY AZ	BLH-991217ACF	244C2 96.7	1.050 825.0	DA 34-33-06 114-11-37	2.9	60.94 4.94	56 CLOSE
KRCY-FM CP	LAKE HAVASU CITY AZ	BPH-061013ADB	244C2 96.7	1.050 825.0	34-33-06 114-11-37	2.9	60.94 4.94	56 CLOSE
KRCY-FM RSV	LAKE HAVASU CITY AZ	-	245C2 96.9	0.000 0.0	34-35-32 114-17-44	354.6	65.65 9.65	56 CLOSE
KRCY-FM APP	LAKE HAVASU CITY AZ	BMPH-070130ACE	245C2 96.9	1.050 825.0	DA 34-33-06 114-11-37	2.9 SS	60.94 4.94	56 CLOSE
NEW-T APP	DESERT CENTER CA	BNPFT-030317HLV	245D 96.9	0.010 848.0	33-39-22 115-27-09	251.5	119.73 0.00	0 TRANS
NEW-T APP	DESERT CENTER CA	BNPFT-030829ADH	245D 96.9	0.010 843.0	DA 33-39-22 115-27-09	251.5	119.73 0.00	0 TRANS
KGPS-LP CP MOD	KINGMAN AZ	BMPL-061108AAV	246L1 97.1	0.100 -37.1	35-13-45 113-56-45	10.6	138.45 71.45	67 CLEAR
K246AE LIC	LAKE HAVASU CITY AZ	BLFT-950901TB	246D 97.1	0.012 267.0	DA 34-36-09 114-22-14	348.9	67.78 0.00	0 TRANS
NEW-T APP	PARKER STRIP AZ	BNPFT-030317DYX	246D 97.1	0.015 389.0	34-07-29 114-12-38	6.7	13.59 0.00	0 TRANS
K246AA LIC	PRESCOTT AZ	BLFT-931115TE	246D 97.1	0.011 733.0	DA 34-29-20 112-32-15	70.4	164.77 0.00	0 TRANS
NEW-T APP	QUARTZSITE AZ	BNPFT-030317DZS	246D 97.1	0.250 121.0	33-42-11 114-13-04	178.4	33.29 0.00	0 TRANS
NEW-T APP	CALIPATRIA CA	BNPFT-030317FJA	246D 97.1	0.055 65.0	33-07-19 115-30-18	230.7	153.68 0.00	0 TRANS
NEW-T APP	EL CENTRO CA	BNPFT-030317FKT	246D 97.1	0.019 96.0	32-46-56 115-31-54	222.1	181.80 0.00	0 TRANS

SEARCH PARAMETERS

FM Database Date: 070416

Channel: 247C3 97.3 MHz  
 Latitude: 34 0 11  
 Longitude: 114 13 40  
 Safety Zone: 100 km  
 Job Title: 247C3 Parker  
 Page 2

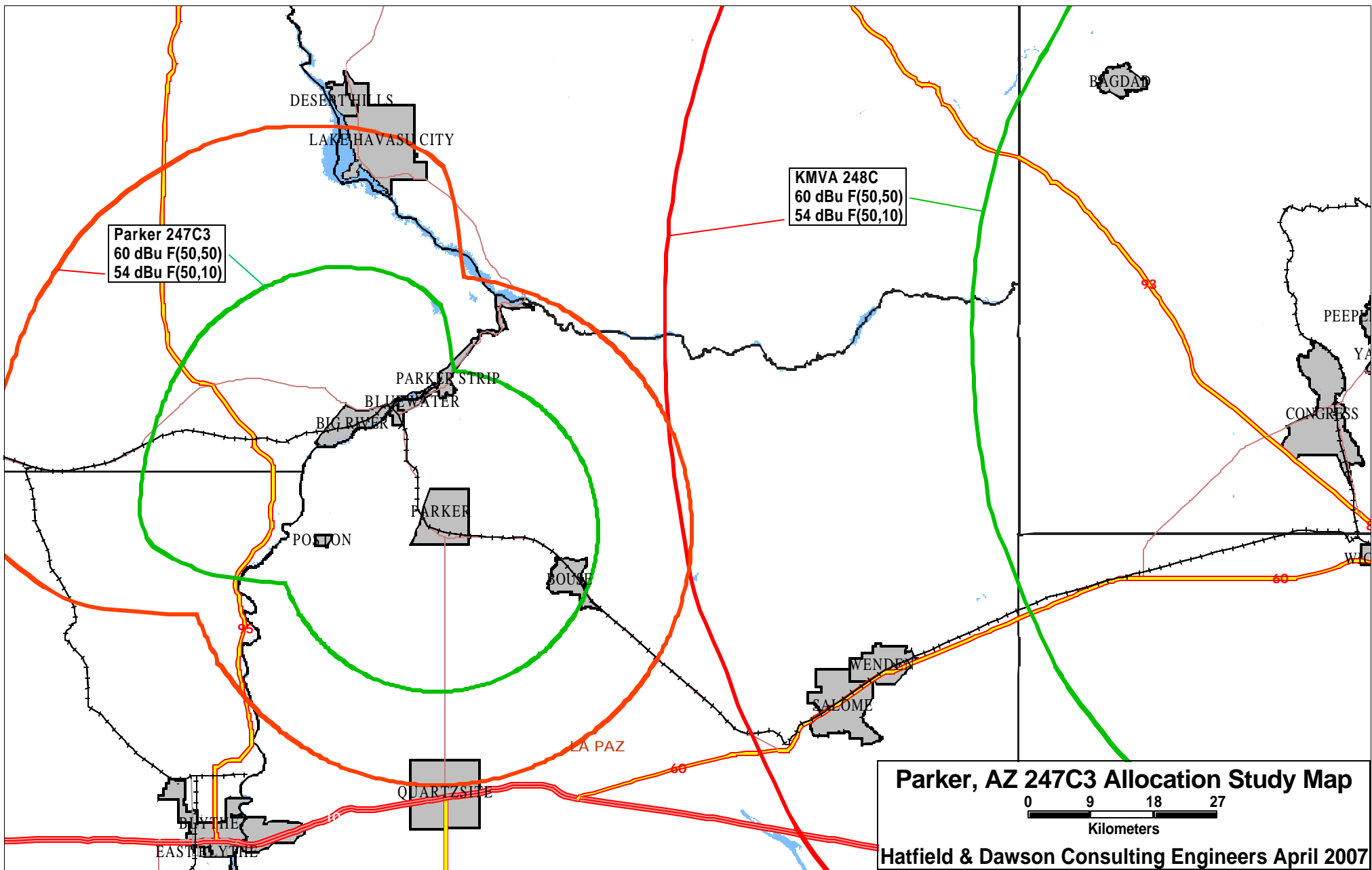
Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KXPTaux LIC	LAS VEGAS NV	BLH-990422KE	246C 97.1	1.800 574.0	35-56-44 115-02-31	341.3	227.96 0.00	0 AUX
KXPT LIC	LAS VEGAS NV	BLH-960913KA	246C 97.1	25.000 1120.0	35-58-02 115-30-06	332.4	247.00 71.00	176 CLEAR
	TECOLOTE BN -		247A 97.3	0.000 0.0	32-33-45 114-59-20	204.0	174.79 36.79	138 CLEAR
	SONOITA SO -		247B 97.3	0.000 0.0	31-51-41 112-51-16	151.3	270.02 59.02	211 CLEAR
K247AC LIC	BAGDAD AZ	BLFT-930907TH	247D 97.3	0.046 335.0	34-34-10 113-10-55	56.5	114.98 0.00	0 TRANS
NEW-T APP	KINGMAN AZ	BNPFT-030317HJO	247D 97.3	0.250 1766.0	35-11-30 113-26-47	28.2	150.08 0.00	0 TRANS
NEW-T APP	LAKE HAVASU CITY AZ	BNPFT-030317CEH	247D 97.3	0.041 247.0	34-31-26 114-17-40	354.0	58.10 0.00	0 TRANS
VAC	PARKER AZ	RM-10081	247C3 97.3	0.000 0.0	34-03-11 114-17-18	314.9	7.88 -145.12	153 SHORT
ABSOLUTE MINIMUM 73.215 SPACING = 142 KM								
NEW APP	PARKER AZ	BSFH-061215ADC	247C3 97.3	0.000 0.0	34-03-11 114-17-18	314.9	7.88 -145.12	153 SHORT
ABSOLUTE MINIMUM 73.215 SPACING = 142 KM								
NEW-T APP	WICKENBURG AZ	BNPFT-030314AMP	247D 97.3	0.250 178.0	33-55-34 112-47-40	93.3	132.75 0.00	0 TRANS
NEW-T APP	CALIPATRIA CA	BNPFT-030317CKS	247D 97.3	0.055 65.0	33-07-19 115-30-18	230.7	153.68 0.00	0 TRANS
NEW-T APP	EL CENTRO CA	BNPFT-030317CLR	247D 97.3	0.019 96.0	32-46-56 115-31-54	222.1	181.80 0.00	0 TRANS
KSON-FM LIC	SAN DIEGO CA	BLH-820120AK	247B 97.3	50.000 134.0	32-43-13 117-04-14	242.4	300.41 89.41	211 CLEAR
KMVA LIC	DEWEY-HUMBOLDT AZ	BLH-050413ABX	248C 97.5	42.000 849.0	34-14-05 112-22-02	80.9 SS	173.56 -2.44	176 SHORT
ABSOLUTE MINIMUM 73.215 SPACING = 165 KM								

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SEARCH PARAMETERS FM Database Date: 070416

Channel: 247C3 97.3 MHz Page 3  
 Latitude: 34 0 11  
 Longitude: 114 13 40  
 Safety Zone: 100 km  
 Job Title: 247C3 Parker

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
	DEWEY-HUMBOLDT		248C	0.000	34-14-42	80.6	174.61	176
RSV	AZ	RM-d-0273-2	97.5	0.0	112-21-27		-1.39	SHORT
ABSOLUTE MINIMUM 73.215 SPACING = 165 KM								
K248BH	GOODYEAR		248D	0.011	33-26-58	110.4	172.71	0
CP	AZ	BNPFT-030826AQQ	97.5	82.0	112-29-10		0.00	TRANS
NEW-T	KINGMAN		248D	0.010	35-04-52	13.8	123.24	0
APP	AZ	BNPFT-030314BEH	97.5	1378.0	113-54-12		0.00	TRANS
NEW-T	LAKE HAVASU CITY		248D	0.041	34-31-26	354.0	58.10	0
APP	AZ	BNPFT-030317DKE	97.5	247.0	114-17-40		0.00	TRANS
K248BJ	MOHAVE VALLEY		248D	0.140	34-54-47	339.4	107.98	0
CP	AZ	BNPFT-030825AEV	97.5	83.0	114-38-42		0.00	TRANS
NEW-T	PARKER STRIP		248D	0.015	34-07-29	6.7	13.59	0
APP	AZ	BNPFT-030317DUQ	97.5	389.0	114-12-38		0.00	TRANS
NEW-T	QUARTZSITE		248D	0.250	33-42-11	178.4	33.29	0
APP	AZ	BNPFT-030317DVK	97.5	121.0	114-13-04		0.00	TRANS
NEW-T	WICKENBURG		248D	0.050	33-56-37	92.5	130.91	0
APP	AZ	BNPFT-030317FYF	97.5	93.0	112-48-47		0.00	TRANS
NEW-T	NOTHING		249D	0.250	34-28-47	56.9	97.71	0
APP	AZ	BNPFT-030317HMA	97.7	1308.0	113-20-09		0.00	TRANS
NEW-T	QUARTZ SITE		249D	0.250	33-40-34	195.0	37.54	0
APP	AZ	BNPFT-030317LIO	97.7	1115.0	114-19-58		0.00	TRANS
NEW-T	QUARTZSITE		249D	0.250	33-42-11	178.4	33.29	0
APP	AZ	BNPFT-030317DVN	97.7	121.0	114-13-04		0.00	TRANS
KLUK	NEEDLES		250C1	29.500	35-02-06	353.6	115.21	76
LIC	CA	BLH-950502KA	97.9	473.0	114-22-09		39.21	CLEAR



## 6. Statement of Engineer

This Engineering Report, which is part of an application for a Construction Permit for a new FM station at Parker, AZ has been prepared by the undersigned. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Oregon.

Signed this 25th day of April, 2007



Thomas S. Gorton, P.E.

Hatfield & Dawson Consulting Engineers