

May 2022
FM Translator K260BL
Prescott, Arizona Channel 260D
Allocation Study

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 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.

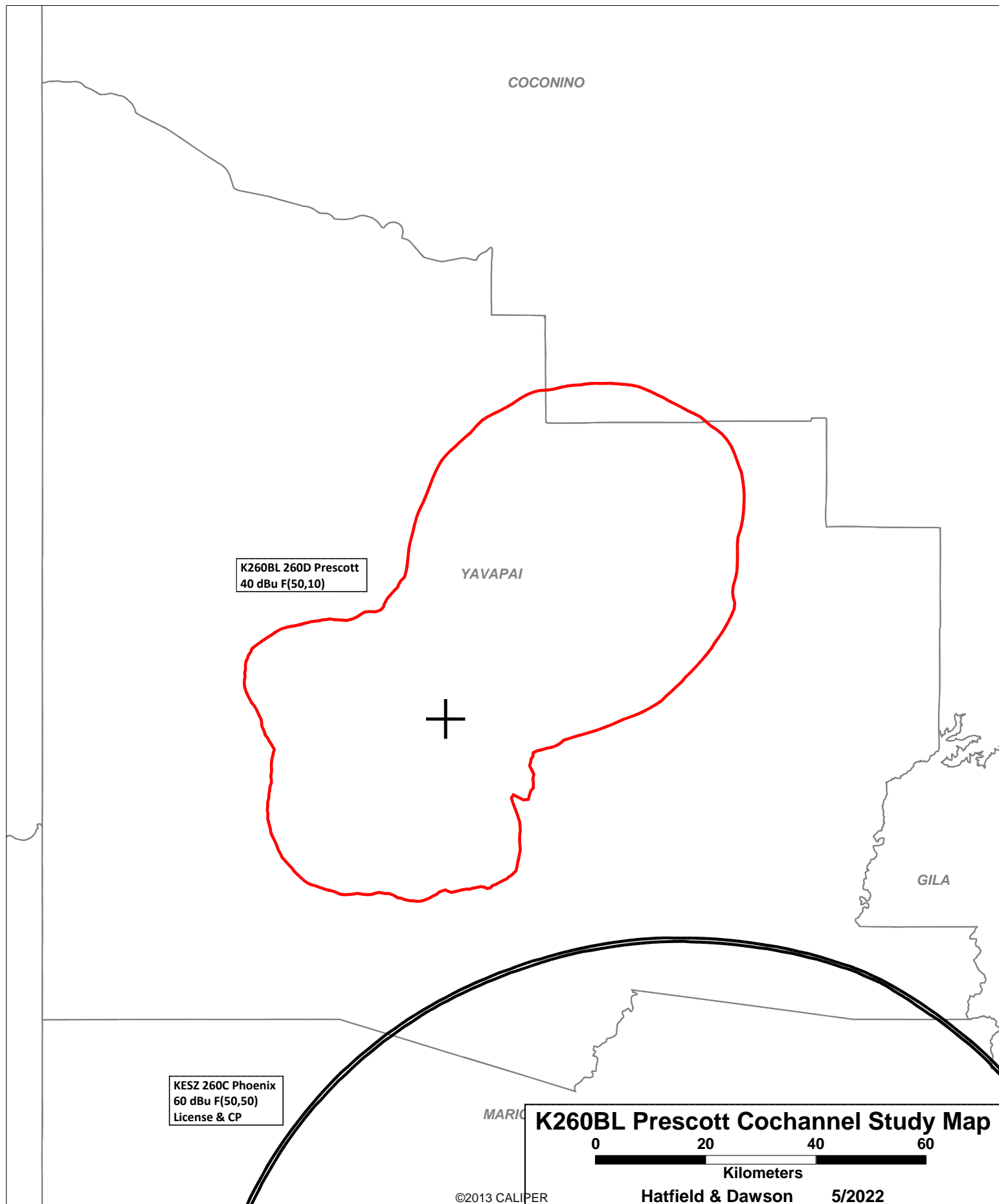
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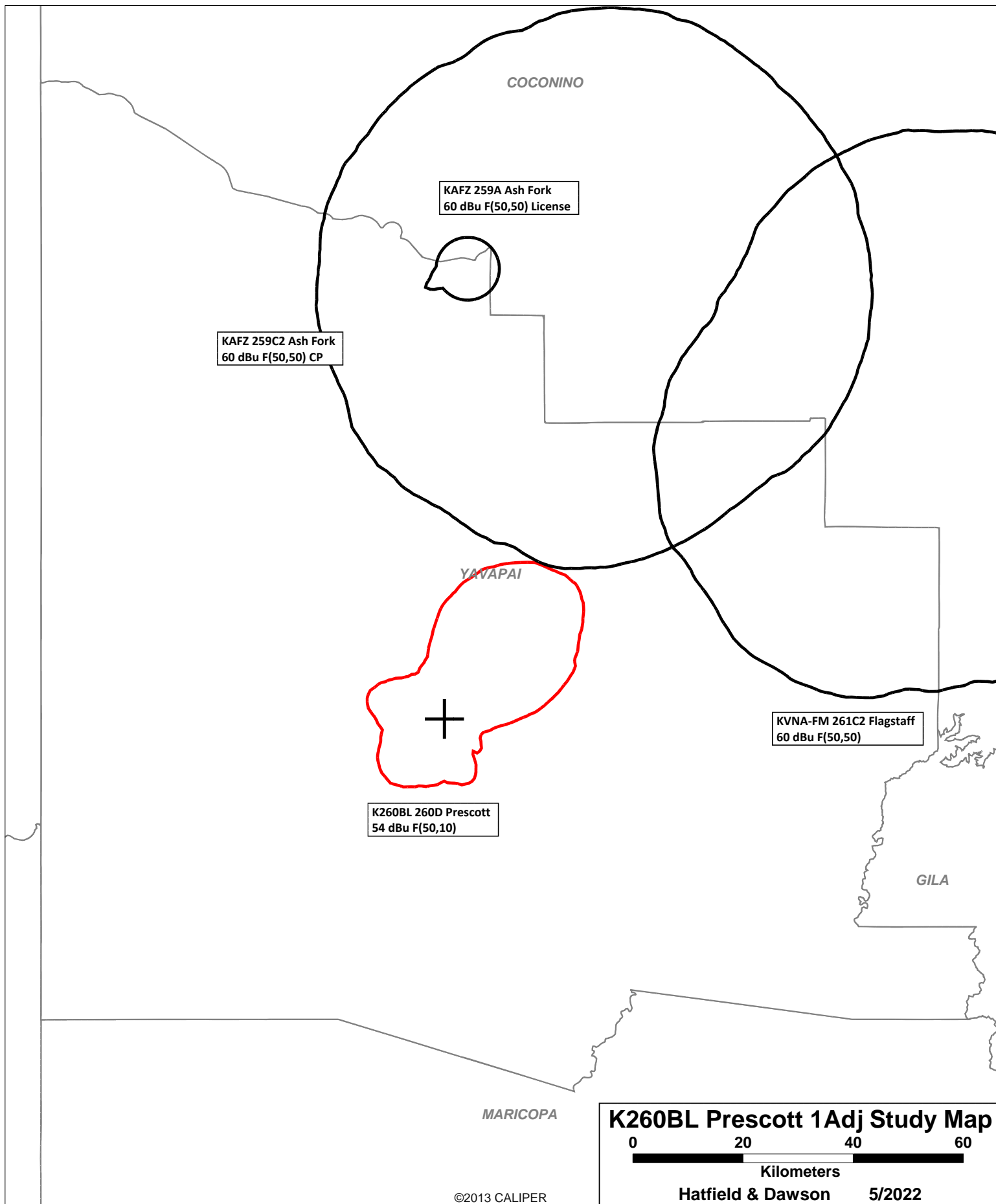
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SEARCH PARAMETERS                               FM Database Date: 20220509
Channel: 260A      99.9 MHz                      Page 1
Latitude: 34 29 24.2 (NAD83)
Longitude: 112 32 2.0
Safety Zone: 50 km
Job Title: K260BL PRESCOTT

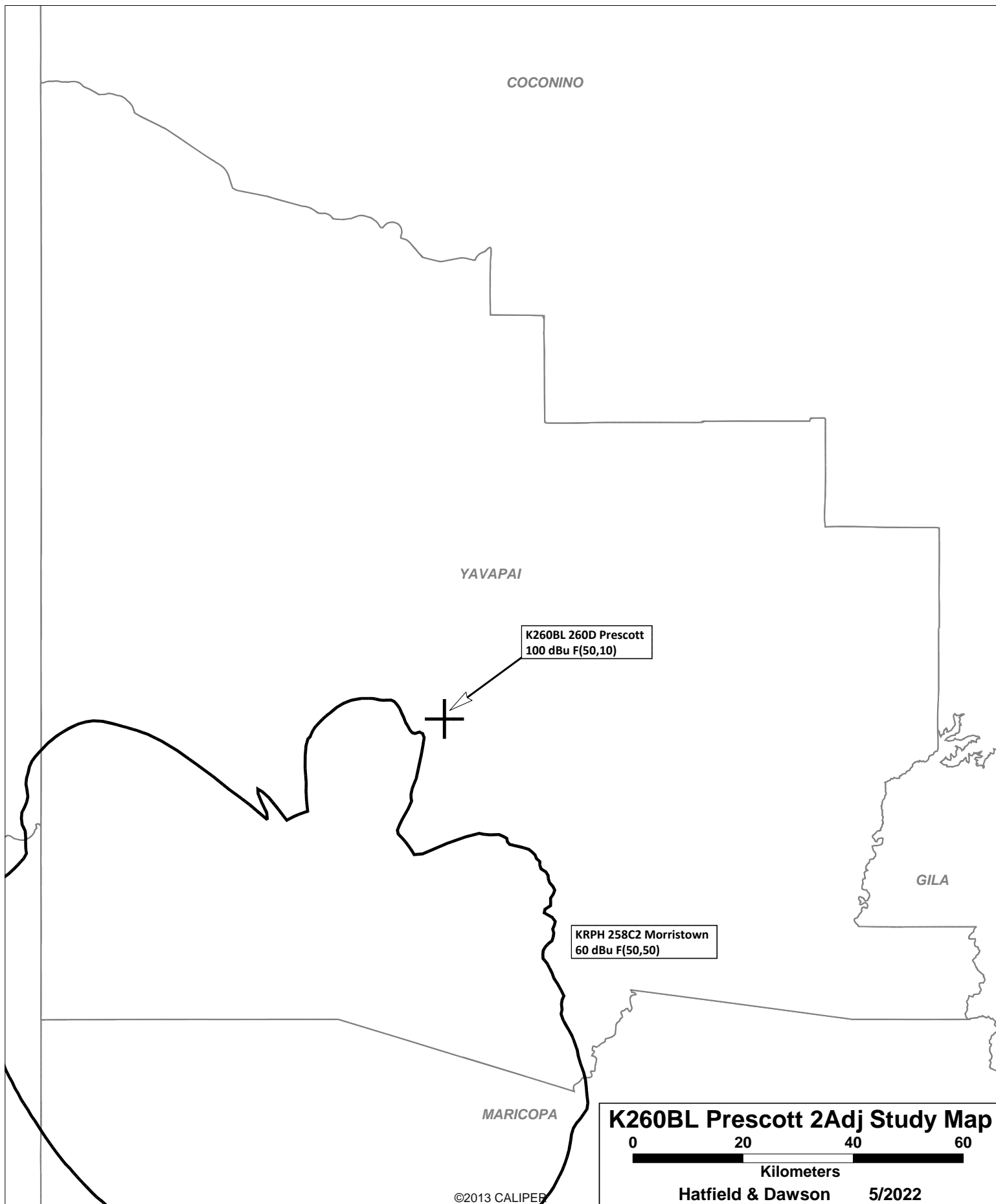
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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KNAQ LIC	PRESCOTT AZ	207A BLED-19971209KD	207A 89.3	0.100 483.0	34 29 24.1 112 32 1.6	106.9	0.01 -9.99	10 SHORT
KRPB-FM1 LIC	WITTMAN AZ	258D BLFTB-20121210AC	258D 99.5	0.625 0.0	33 57 17.1 112 28 36.6	174.9	59.61 0.00	0 BOOST
KRPB LIC	MORRISTOWN AZ	258C2 0000106194	258C2 99.5	7.900 371.0	34 11 32.1 112 45 13.0	211.4	38.73 -16.27	55 SHORT
KAFZ LIC	ASH FORK AZ	259A BLH-20150623ABL	259A 99.7	0.100 -46.0	35 13 29.0 112 29 13.6	3.0	81.61 9.61	72 CLOSE
KAFZ CP	ASH FORK AZ	259C2 0000158738	259C2 99.7	1.000 757.0	35 12 0.0 112 12 18.0	20.7 SS	84.31 -21.69	106 SHORT
K260BL LIC	PRESCOTT AZ	260D BLFT-20080902ADF	260D 99.9	0.010 0.0	DA 34 29 20.1 112 32 17.6	252.3	0.42 0.00	0 TRANS
KESZ LIC	PHOENIX AZ	260C BLH-19970324KD	260C 99.9	100.000 519.0	33 20 1.1 112 3 46.5	161.2	135.46 -90.54	226 SHORT
KONY CP	ST. GEORGE UT	260C 0000121666	260C 99.9	89.000 600.0	36 50 59.0 113 29 34.0	342.0	275.82 49.82	226 CLEAR
KESZ CP	PHOENIX AZ	260C 0000123823	260C 99.9	100.000 506.0	33 20 3.7 112 3 41.2	161.1	135.43 -90.57	226 SHORT
KONY LIC	ST. GEORGE UT	260C BLH-20120315AAA	260C 99.9	89.000 620.0	36 50 48.9 113 29 30.8	342.0	275.50 49.50	226 CLEAR
K260BR LIC	LAKE HAVASU CITY AZ	260D BLFT-20110826ADS	260D 99.9	0.034 0.0	DA 34 33 6.0 114 11 39.8	273.0	152.62 0.00	0 TRANS
KVNA-FM LIC	FLAGSTAFF AZ	261C2 BMLH-20060113ABB	261C2 100.1	5.300 437.0	34 58 5.1 111 30 31.5	60.1	107.83 1.83	106 CLOSE
KGMN LIC	KINGMAN AZ	261C2 BMLH-20020213AAY	261C2 100.1	0.910 883.0	35 6 37.0 113 52 57.8	299.6	141.31 35.31	106 CLEAR
KCWG-LP LIC	CROWN KING AZ	262L1 BLL-20030801CEK	262L1 100.3	0.001 736.2	34 13 48.1 112 21 4.5	149.8	33.38 4.38	29 CLOSE
KZRJ-LP LIC	JEROME AZ	263L1 BLL-20190326AAR	263L1 100.5	0.100 18.0	34 44 47.9 112 6 43.5	53.4	48.03 19.03	29 CLEAR

===== END OF FM SPACING STUDY FOR CHANNEL 260 =====







May 2022
FM Translator K260BL
Prescott, Arizona Channel 260D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 260D (99.9 MHz) with an effective radiated power of 82 watts. Operation is proposed with an antenna to be mounted on an existing tower on Mount Francis.

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	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	34-29-24.2 north
Longitude	112-32-02.0 west
Measurements (Meters)	
Overall Structure Height (AGL)	17
Support Structure Height (AGL)	17
Site Elevation (AMSL)	2159.6
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.

The antenna to be used by the translator is a Scala CA5-FM-CP yagi antenna. Included with this Engineering Statement is a complete tabulation of the vertical plane radiation pattern as provided by the antenna manufacturer along with the calculated ground-level power density from the antenna at 1 meter increments from the antenna. These calculations were performed correctly using appropriate mathematical principles and the formula (above) from OET Bulletin No. 65. The highest calculated ground level power density from the translator occurs at a distance of 15 meters from the base of the antenna support structure. At this point the power density is calculated to be 7.2 $\mu W/cm^2$, which is 3.6% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K260BL alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307 of the Commission's Rules exempts applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

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.

Hatfield & Dawson Consulting Engineers

K260BL Prescott

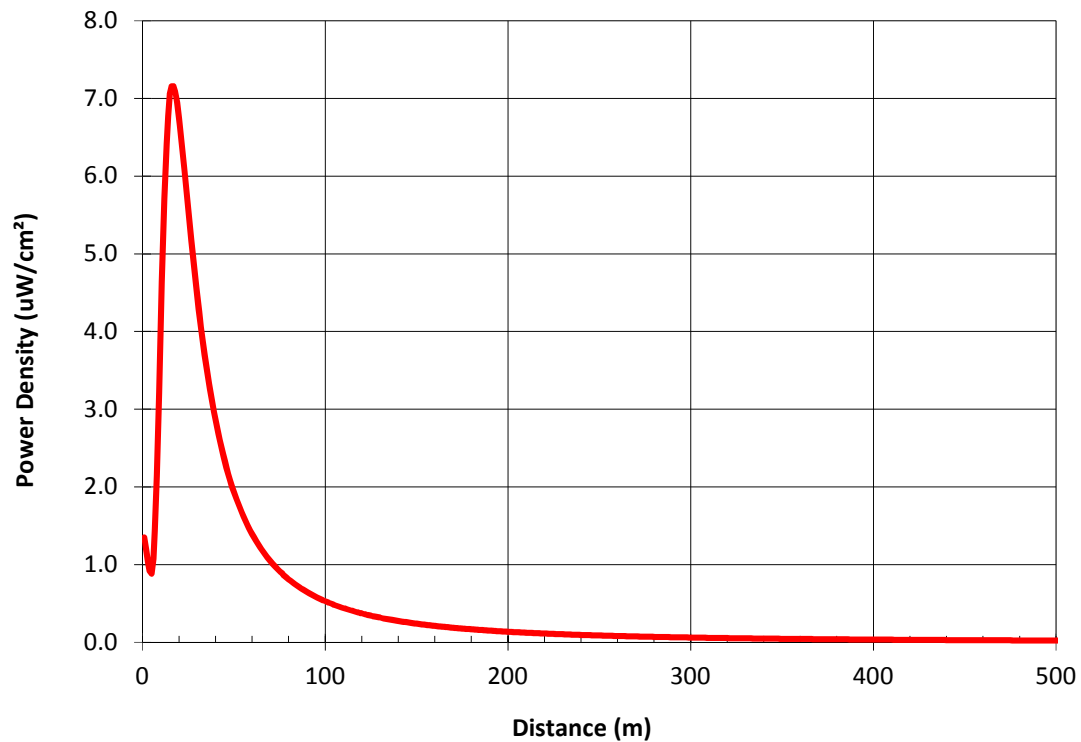
Ground-Level Power Density Calculations

Using Manufacturer's Vertical Plane Pattern

Antenna	CA5FMCP		
ERP	82 Watts H (avg)		
	82 Watts V (avg)		
Antenna AGL	12 meters less 2m is	10 meters above the reference plane	
MBT	0 degrees		

Calculated
Maximum is 7.2 $\mu\text{W}/\text{cm}^2$ at 15 meters from the tower

Power Density vs Distance



K260BL Prescott
Ground-Level Power Density Calculations
Using Manufacturer's Vertical Plane Pattern

Distance From Tower (meters)	Hypotenuse (meters)	Depression Angle (with MBT adjust) (degrees)	Interpolated Rel Field	Adjusted ERP (watts)	Power Density uW/cm ²
0	10.00	90.00	0.157	4.0	1.35
1	10.05	84.29	0.149	3.6	1.20
2	10.20	78.69	0.140	3.2	1.03
3	10.44	73.30	0.135	3.0	0.92
4	10.77	68.20	0.137	3.1	0.88
5	11.18	63.43	0.157	4.0	1.08
6	11.66	59.04	0.201	6.6	1.62
7	12.21	55.01	0.247	10.0	2.24
8	12.81	51.34	0.307	15.5	3.15
9	13.45	48.01	0.367	22.1	4.07
10	14.14	45.00	0.423	29.3	4.90
11	14.87	42.27	0.480	37.8	5.72
12	15.62	39.81	0.532	46.4	6.35
13	16.40	37.57	0.577	54.5	6.77
14	17.20	35.54	0.617	62.5	7.05
15	18.03	33.69	0.652	69.6	7.16
16	18.87	32.01	0.682	76.3	7.16
17	19.72	30.47	0.710	82.6	7.09
18	20.59	29.05	0.733	88.1	6.95
19	21.47	27.76	0.753	93.0	6.74
20	22.36	26.57	0.772	97.6	6.52
21	23.26	25.46	0.789	102.0	6.30
22	24.17	24.44	0.804	106.0	6.06
23	25.08	23.50	0.817	109.5	5.81
24	26.00	22.62	0.829	112.8	5.57
25	26.93	21.80	0.841	115.9	5.34
26	27.86	21.04	0.851	118.9	5.12
27	28.79	20.32	0.861	121.7	4.91
28	29.73	19.65	0.869	124.0	4.69
29	30.68	19.03	0.876	125.8	4.47
30	31.62	18.43	0.881	127.3	4.25
31	32.57	17.88	0.886	128.8	4.06
32	33.53	17.35	0.891	130.3	3.87
33	34.48	16.86	0.896	131.8	3.70
34	35.44	16.39	0.901	133.2	3.54
35	36.40	15.95	0.906	134.5	3.39
36	37.36	15.52	0.910	135.7	3.25
37	38.33	15.12	0.914	136.9	3.11
38	39.29	14.74	0.917	137.8	2.98
39	40.26	14.38	0.919	138.6	2.86
40	41.23	14.04	0.922	139.3	2.74
41	42.20	13.71	0.924	140.1	2.63
42	43.17	13.39	0.927	140.9	2.53
43	44.15	13.09	0.929	141.6	2.43
44	45.12	12.80	0.931	142.3	2.33

45	46.10	12.53	0.933	142.9	2.25
46	47.07	12.26	0.935	143.4	2.16
47	48.05	12.01	0.937	144.0	2.08
48	49.03	11.77	0.939	144.6	2.01
49	50.01	11.53	0.941	145.1	1.94
50	50.99	11.31	0.943	145.7	1.87
51	51.97	11.09	0.944	146.2	1.81
52	52.95	10.89	0.946	146.7	1.75
53	53.94	10.68	0.947	147.1	1.69
54	54.92	10.49	0.949	147.6	1.63
55	55.90	10.30	0.950	148.0	1.58
56	56.89	10.12	0.951	148.4	1.53
57	57.87	9.95	0.952	148.7	1.48
58	58.86	9.78	0.953	149.0	1.44
59	59.84	9.62	0.954	149.3	1.39
60	60.83	9.46	0.955	149.6	1.35
61	61.81	9.31	0.956	149.9	1.31
62	62.80	9.16	0.957	150.2	1.27
63	63.79	9.02	0.958	150.5	1.24
64	64.78	8.88	0.959	150.7	1.20
65	65.76	8.75	0.960	151.0	1.17
66	66.75	8.62	0.960	151.2	1.13
67	67.74	8.49	0.961	151.5	1.10
68	68.73	8.37	0.962	151.7	1.07
69	69.72	8.25	0.963	151.9	1.04
70	70.71	8.13	0.963	152.2	1.02
71	71.70	8.02	0.964	152.4	0.99
72	72.69	7.91	0.965	152.6	0.96
73	73.68	7.80	0.965	152.8	0.94
74	74.67	7.70	0.966	153.0	0.92
75	75.66	7.59	0.966	153.2	0.89
76	76.66	7.50	0.967	153.4	0.87
77	77.65	7.40	0.968	153.5	0.85
78	78.64	7.31	0.968	153.7	0.83
79	79.63	7.21	0.969	153.9	0.81
80	80.62	7.13	0.969	154.1	0.79
81	81.61	7.04	0.970	154.2	0.77
82	82.61	6.95	0.970	154.4	0.76
83	83.60	6.87	0.971	154.6	0.74
84	84.59	6.79	0.971	154.7	0.72
85	85.59	6.71	0.972	154.9	0.71
86	86.58	6.63	0.972	155.0	0.69
87	87.57	6.56	0.973	155.2	0.68
88	88.57	6.48	0.973	155.3	0.66
89	89.56	6.41	0.974	155.4	0.65
90	90.55	6.34	0.974	155.6	0.63
91	91.55	6.27	0.974	155.7	0.62
92	92.54	6.20	0.975	155.8	0.61
93	93.54	6.14	0.975	156.0	0.60
94	94.53	6.07	0.976	156.1	0.58
95	95.52	6.01	0.976	156.2	0.57
96	96.52	5.95	0.976	156.3	0.56

Vertical Plane Radiation Pattern for Scala CA5-FM-CP Antenna

Elevation Angle	Relative Field		
0	1	46	0.405
1	0.996	47	0.386
2	0.993	48	0.367
3	0.989	49	0.348
4	0.986	50	0.329
5	0.982	51	0.313
6	0.976	52	0.296
7	0.97	53	0.28
8	0.964	54	0.263
9	0.958	55	0.247
10	0.952	56	0.235
11	0.945	57	0.224
12	0.937	58	0.213
13	0.93	59	0.201
14	0.922	60	0.19
15	0.915	61	0.18
16	0.905	62	0.171
17	0.895	63	0.161
18	0.885	64	0.151
19	0.876	65	0.142
20	0.866	66	0.14
21	0.852	67	0.139
22	0.838	68	0.137
23	0.824	69	0.136
24	0.81	70	0.134
25	0.796	71	0.134
26	0.78	72	0.134
27	0.765	73	0.135
28	0.749	74	0.135
29	0.734	75	0.135
30	0.718	76	0.136
31	0.7	77	0.138
32	0.682	78	0.139
33	0.664	79	0.14
34	0.646	80	0.142
35	0.628	81	0.143
36	0.608	82	0.145
37	0.588	83	0.147
38	0.568	84	0.148
39	0.548	85	0.15
40	0.528	86	0.151
41	0.507	87	0.153
42	0.486	88	0.154
43	0.465	89	0.156
44	0.444	90	0.157
45	0.423		

