SACRAMENTO BIKE KITCHEN
MINOR MODIFICATION OF LICENSED FACILITIES LOW POWER FM
KBQS-LP SACRAMENTO, CA FAC ID # 197555

Parameters

Coordinates:	38° 33' 8.6" N 121° 33' 23.2 W(NAD 27)
	38° 33' 8.3" N 121° 33' 27.0 W(NAD 83)
CH:	255
Frequency:	98.9 MHz
Power:	0.05 kW
Type:	LPFM
Ground:	5 M
COR:	27 M
HAAT:	22.8 M
AGL:	22 M

N. Lat. 38 33 08.6
W. Lng. 121 33 23.2
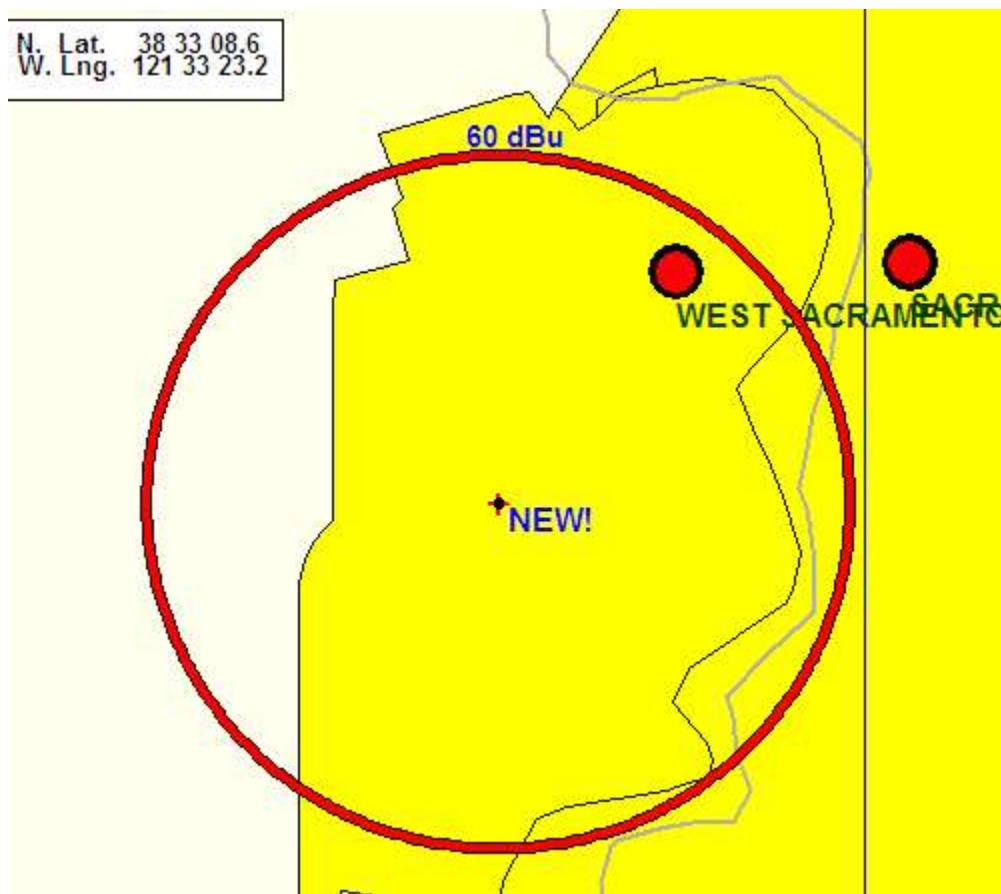
FCC 60 dBu F(50,50)

Spacing

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                        Sacramento Bicycle Kitchen
REFERENCE                                               DISPLAY DATES
38 33 08.6 N.                    CLASS = L1              DATA   05-27-17
121 33 23.2 W.          Current  Spacings to 2nd Adj.   SEARCH 10-24-17
-------------------------- Channel 255 - 98.9 MHz --------------------------

Call           Channel    Location                 Azi    Dist   FCC   Margin
----------------------------------------------------------------------------
*KRXQ    LIC    253B   Sacramento        CA    74.9   41.36   66.5   -25.1
KARA     LIC-N  256B1  Williams          CA   342.7   76.00   73.5     2.5
K255CL   LIC-D  255D   Clarksville       CA    74.9   41.36   38.5     2.9
KSOL     LIC    255B   San Francisco     CA   221.7  118.25  111.5     6.8
K255CL   CP -D  256D   Folsom            CA    74.9   41.36   27.5    13.9
K255CN   LIC    255D   Auburn            CA    45.6   60.39   25.5    34.9
KJOY     LIC-Z  257A   Stockton          CA   159.3   66.52   28.5    38.0
KVYN     LIC-Z  257A   St. Helena        CA   258.4   68.57   28.5    40.1


----------------------------------------------------------------------------
        All separation margins include rounding
        *See second adj waiver request
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Spacing Map
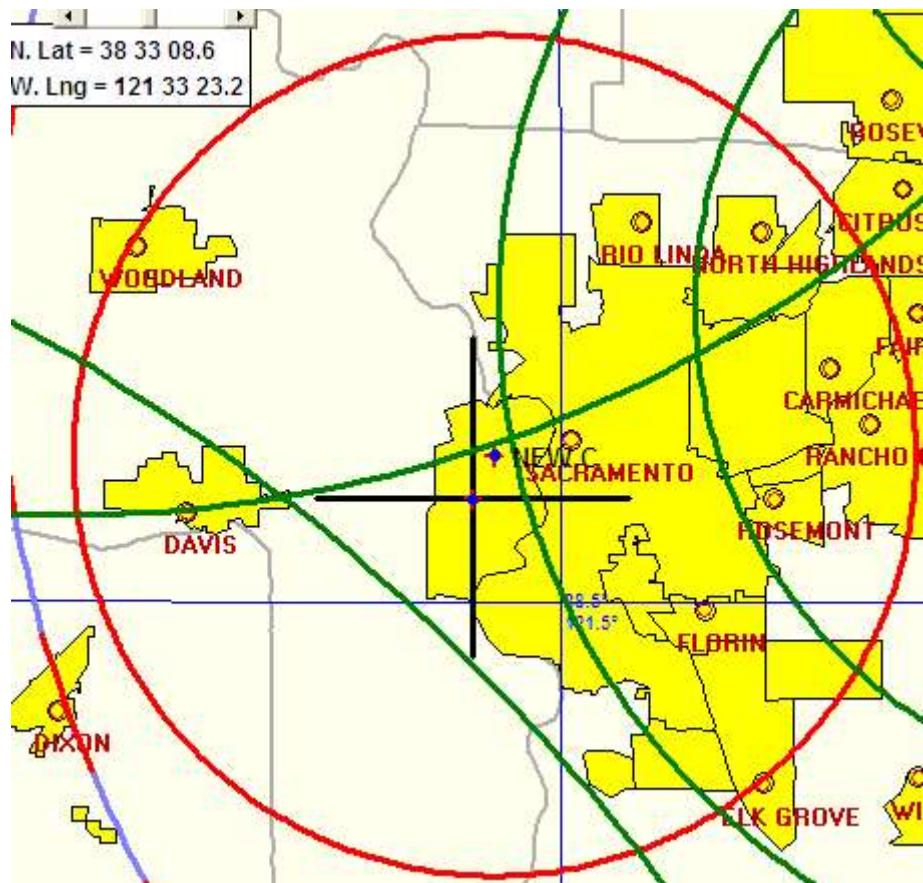
TOWAIR Determination (PASS)

DETERMINATION Results

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7001.86 MTRS (7.0019 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	38-30-19.00N	121-30-3.00W	SACRAMENTO EXECUTIVE	SACRAMENTO SACRAMENTO, CA	5.0	1677.3

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6625.74 MTRS (6.62570 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	38-31-6.00N	121-29-42.00W	SACRAMENTO EXECUTIVE	SACRAMENTO SACRAMENTO, CA	5.0	1677.3

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6829.65 MTRS (6.82969 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	38-30-59.00N	121-29-38.00W	SACRAMENTO EXECUTIVE	SACRAMENTO SACRAMENTO, CA	5.0	1677.3

Your Specifications

NAD83 Coordinates

Latitude	38-33-08.3 north
Longitude	121-33-27.0 west

Measurements (Meters)

Overall Structure Height (AGL)	23
Support Structure Height (AGL)	0
Site Elevation (AMSL)	5

Structure Type

TREE - When used as a support for an antenna

Second Adjacent Channel Waiver Request

License respectfully requests a "second adjacent channel waiver" with regards to Section 47 C.F.R. Section 73.807 of the FCC rules based upon the "Living Way" precedence (Living Way Ministries, Inc., Memorandum Opinion and Order, 17 FCC Red 17054, 17056, ¶ 5 (2002), recon. denied 23 FCC Red 15070 (2008)). This will be accomplished by used Free Space methodology of calculation.

Using U/D methodology, at the proposed KBQS-LP transmitter location KRXQ has a signal strength of 70.6 dBu. Interference will occur when the interfering signal exceeds the desired signal by 40 dbu. So the area of predicted interference would then be bounded by the 110.6 dBu contour.
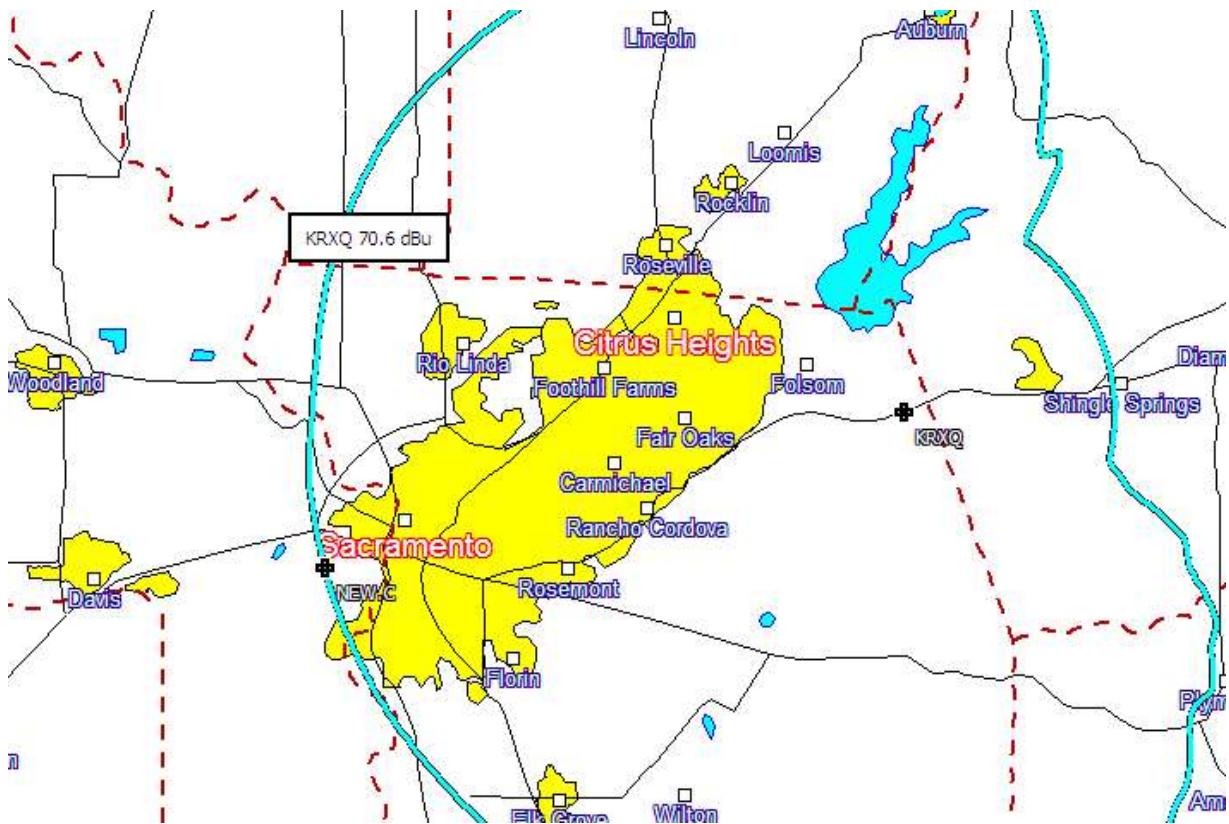
The distance to this contour, using free space method:

D = (7.01*P1/2)/E, where P is power (watts), E is field strength (v/m), and D is distance to contour (meters):

P = 50 w, E = 110.6 dBu
D = 146.2 meters

However, the field strength of the proposed LPFM's antenna system falls quickly at depression angles below the horizon. Using elevation pattern data provided by Nicom (4 bay 0.85 spaced BKG77 antenna http://www.nicomusa.com/bkg77) for a 0.85 wave spaced antenna, the distance to the 110.6 dBu contour at various depression angles is tabulated below. The data shows that the lowest point at which the signal strength rises to 110.6 dBu is 17.9 meters below the center of radiation of the antenna system, or 4.1 meters above the ground (in a tree). Therefore, this is sufficient clearance, and the interference area encompasses zero population. The table below show that the lowest elevation point of the 110.6 dBu F(50,10) interfering contour is 4.1 meters above the ground.

Due to zero population within this radiation radius, this meets the "Living way" Critera to qualify for a Waiver of 47 C.F.R. Section 73.807.

Thus, the applicant requests second adjacent waiver based upon evidence no interference is proposed.

A MAX ERP
B DEPRESSION ANGLE BELOW HORIZON
C RELATIVE FIELD
D dB FROM RELATIVE
E ERP
F ANGULAR DISTANCE TO 110.6 dBu CONTOUR
G VERTICAL DISTANCE (below antenna)
H HORIZONTAL DISTANCE TO 110.6 dBu CONTOUR
I CLEARENCE OF CONTOUR ABOVE GROUND

A	B	C	D	E	F	G	H	I
50	0	1	0.000	50.00	146.2	0	146.2	22
50	0.5	0.998	-0.017	49.80	145.9	1.2	145.8	20.8
50	1	0.994	-0.052	49.40	145.4	2.5	145.3	19.5
50	1.5	0.987	-0.114	48.71	144.3	3.7	144.2	18.3
50	2	0.977	-0.202	47.73	142.9	4.9	142.8	17.1
50	2.5	0.964	-0.318	46.46	141	6.1	140.8	15.9
50	3	0.949	-0.455	45.03	138.8	7.2	138.6	14.8
50	3.5	0.931	-0.621	43.34	136.1	8.3	135.8	13.7
50	4	0.911	-0.810	41.50	133.2	9.2	132.8	12.8
50	4.5	0.888	-1.032	39.43	129.9	10.1	129.4	11.9
50	5	0.863	-1.280	37.24	126.2	10.9	125.7	11.1
50	5.5	0.836	-1.556	34.94	122.2	11.7	121.6	10.3
50	6	0.806	-1.873	32.48	117.9	12.3	117.2	9.7
50	6.5	0.775	-2.214	30.03	113.3	12.8	112.5	9.2
50	7	0.742	-2.592	27.53	108.5	13.2	107.6	8.8
50	7.5	0.707	-3.012	24.99	103.4	13.4	102.5	8.6
50	8	0.671	-3.466	22.51	98.1	13.6	97.1	8.4
50	8.5	0.634	-3.958	20.10	92.7	13.6	91.6	8.4
50	9	0.596	-4.495	17.76	87.1	13.6	86	8.4
50	9.5	0.557	-5.083	15.51	81.4	13.4	80.2	8.6
50	10	0.517	-5.730	13.36	75.6	13.1	74.4	8.9
50	10.5	0.476	-6.448	11.33	69.6	12.6	68.4	9.4
50	11	0.434	-7.250	9.42	63.4	12	62.2	10
50	11.5	0.393	-8.112	7.72	57.4	11.4	56.2	10.6
50	12	0.352	-9.069	6.20	51.4	10.6	50.2	11.4
50	12.5	0.311	-10.145	4.84	45.4	9.8	44.3	12.2
50	13	0.271	-11.341	3.67	39.6	8.9	38.5	13.1
50	13.5	0.231	-12.728	2.67	33.7	7.8	32.7	14.2
50	14	0.193	-14.289	1.86	28.2	6.8	27.3	15.2
50	14.5	0.155	-16.193	1.20	22.6	5.6	21.8	16.4
50	15	0.118	-18.562	0.70	17.2	4.4	16.6	17.6
50	15.5	0.083	-21.618	0.34	12.1	3.2	11.6	18.8
50	16	0.049	-26.196	0.12	7.1	1.9	6.8	20.1
50	16.5	0.017	-35.391	0.01	2.4	0.6	2.3	21.4
50	17	0.014	-37.077	0.01	2	0.5	1.9	21.5
50	17.5	0.043	-27.331	0.09	6.2	1.8	5.9	20.2
50	18	0.071	-22.975	0.25	10.3	3.1	9.7	18.9
50	18.5	0.096	-20.355	0.46	14	4.4	13.2	17.6
50	19	0.119	-18.489	0.71	17.4	5.6	16.4	16.4
50	19.5	0.141	-17.016	0.99	20.6	6.8	19.4	15.2
50	20	0.161	-15.863	1.30	23.5	8	22	14
50	20.5	0.178	-14.992	1.58	26	9.1	24.3	12.9
50	21	0.193	-14.289	1.86	28.2	10.1	26.3	11.9
50	21.5	0.206	-13.723	2.12	30.1	11	28	11

50	22	0.217	-13.271	2.35	31.7	11.8	29.3	10.2
50	22.5	0.226	-12.918	2.55	33	12.6	30.4	9.4
50	23	0.233	-12.653	2.71	34	13.2	31.2	8.8
50	23.5	0.239	-12.432	2.86	34.9	13.9	32	8.1
50	24	0.242	-12.324	2.93	35.4	14.3	32.3	7.7
50	24.5	0.243	-12.288	2.95	35.5	14.7	32.3	7.3
50	25	0.243	-12.288	2.95	35.5	14.9	32.1	7.1
50	25.5	0.241	-12.360	2.90	35.2	15.1	31.7	6.9
50	26	0.237	-12.505	2.81	34.6	15.1	31.1	6.9
50	26.5	0.232	-12.690	2.69	33.9	15.1	30.3	6.9
50	27	0.225	-12.956	2.53	32.9	14.9	29.3	7.1
50	27.5	0.217	-13.271	2.35	31.7	14.6	28.1	7.4
50	28	0.208	-13.639	2.16	30.4	14.2	26.8	7.8
50	28.5	0.198	-14.067	1.96	28.9	13.7	25.4	8.3
50	29	0.186	-14.610	1.73	27.2	13.1	23.7	8.9
50	29.5	0.174	-15.189	1.51	25.4	12.5	22.1	9.5
50	30	0.161	-15.863	1.30	23.5	11.7	20.3	10.3
50	30.5	0.147	-16.654	1.08	21.5	10.9	18.5	11.1
50	31	0.132	-17.589	0.87	19.3	9.9	16.5	12.1
50	31.5	0.117	-18.636	0.68	17.1	8.9	14.5	13.1
50	32	0.102	-19.828	0.52	14.9	7.8	12.6	14.2
50	32.5	0.086	-21.310	0.37	12.5	6.7	10.5	15.3
50	33	0.07	-23.098	0.25	10.2	5.5	8.5	16.5
50	33.5	0.054	-25.352	0.15	7.8	4.3	6.5	17.7
50	34	0.038	-28.404	0.07	5.5	3	4.5	19
50	34.5	0.023	-32.765	0.03	3.3	1.8	2.7	20.2
50	35	0.007	-43.098	0.00	1	0.5	0.8	21.5
50	35.5	0.008	-41.938	0.00	1.1	0.6	0.8	21.4
50	36	0.023	-32.765	0.03	3.3	1.9	2.6	20.1
50	36.5	0.037	-28.636	0.07	5.4	3.2	4.3	18.8
50	37	0.051	-25.849	0.13	7.4	4.4	5.9	17.6
50	37.5	0.064	-23.876	0.20	9.3	5.6	7.3	16.4
50	38	0.077	-22.270	0.30	11.2	6.8	8.8	15.2
50	38.5	0.089	-21.012	0.40	13	8	10.1	14
50	39	0.1	-20.000	0.50	14.6	9.1	11.3	12.9
50	39.5	0.111	-19.094	0.62	16.2	10.3	12.5	11.7
50	40	0.12	-18.416	0.72	17.5	11.2	13.4	10.8
50	40.5	0.129	-17.788	0.83	18.8	12.2	14.3	9.8
50	41	0.137	-17.266	0.94	20	13.1	15	8.9
50	41.5	0.144	-16.833	1.04	21	13.9	15.7	8.1
50	42	0.15	-16.478	1.13	21.9	14.6	16.2	7.4
50	42.5	0.156	-16.138	1.22	22.8	15.3	16.8	6.7
50	43	0.16	-15.918	1.28	23.4	15.9	17.1	6.1
50	43.5	0.164	-15.703	1.34	23.9	16.4	17.3	5.6
50	44	0.167	-15.546	1.39	24.4	16.9	17.5	5.1
50	44.5	0.169	-15.442	1.43	24.7	17.3	17.6	4.7
50	45	0.17	-15.391	1.45	24.8	17.5	17.5	4.5
50	45.5	0.17	-15.391	1.45	24.8	17.6	17.3	4.4
50	46	0.17	-15.391	1.45	24.8	17.8	17.2	4.2
<mark>50</mark>	<mark>46.5</mark>	<mark>0.169</mark>	<mark>-15.442</mark>	<mark>1.43</mark>	<mark>24.7</mark>	<mark>17.9</mark>	<mark>17</mark>	<mark>4.1</mark>
50	47	0.167	-15.546	1.39	24.4	17.8	16.6	4.2
50	47.5	0.165	-15.650	1.36	24.1	17.7	16.2	4.3
50	48	0.162	-15.810	1.31	23.6	17.5	15.7	4.5
50	48.5	0.158	-16.027	1.25	23.1	17.2	15.3	4.8
50	49	0.154	-16.250	1.19	22.5	16.9	14.7	5.1
50	49.5	0.149	-16.536	1.11	21.7	16.4	14.1	5.6
50	50	0.144	-16.833	1.04	21	16	13.5	6
50	50.5	0.138	-17.202	0.95	20.1	15.5	12.7	6.5
50	51	0.133	-17.523	0.88	19.4	15	12.2	7
50	51.5	0.126	-17.993	0.79	18.4	14.3	11.4	7.7
50	52	0.12	-18.416	0.72	17.5	13.7	10.7	8.3
50	52.5	0.113	-18.938	0.64	16.5	13	10	9
50	53	0.106	-19.494	0.56	15.5	12.3	9.3	9.7

50	53.5	0.098	-20.175	0.48	14.3	11.4	8.5	10.6
50	54	0.091	-20.819	0.41	13.3	10.7	7.8	11.3
50	54.5	0.083	-21.618	0.34	12.1	9.8	7	12.2
50	55	0.075	-22.499	0.28	10.9	8.9	6.2	13.1
50	55.5	0.067	-23.479	0.22	9.8	8	5.5	14
50	56	0.06	-24.437	0.18	8.7	7.2	4.8	14.8
50	56.5	0.052	-25.680	0.14	7.6	6.3	4.1	15.7
50	57	0.044	-27.131	0.10	6.4	5.3	3.4	16.7
50	57.5	0.036	-28.874	0.06	5.2	4.3	2.7	17.7
50	58	0.028	-31.057	0.04	4	3.3	2.1	18.7
50	58.5	0.021	-33.556	0.02	3	2.5	1.5	19.5
50	59	0.013	-37.721	0.01	1.9	1.6	0.9	20.4
50	59.5	0.006	-44.437	0.00	0.8	0.6	0.4	21.4
50	60	0.001	-60.000	0.00	0.1	0	0	22
50	60.5	0.008	-41.938	0.00	1.1	0.9	0.5	21.1
50	61	0.015	-36.478	0.01	2.1	1.8	1	20.2
50	61.5	0.021	-33.556	0.02	3	2.6	1.4	19.4
50	62	0.027	-31.373	0.04	3.9	3.4	1.8	18.6
50	62.5	0.033	-29.630	0.05	4.8	4.2	2.2	17.8
50	63	0.039	-28.179	0.08	5.7	5	2.5	17
50	63.5	0.045	-26.936	0.10	6.5	5.8	2.9	16.2
50	64	0.05	-26.021	0.13	7.3	6.5	3.2	15.5
50	64.5	0.055	-25.193	0.15	8	7.2	3.4	14.8
50	65	0.059	-24.583	0.17	8.6	7.7	3.6	14.3
50	65.5	0.064	-23.876	0.20	9.3	8.4	3.8	13.6
50	66	0.068	-23.350	0.23	9.9	9	4	13
50	66.5	0.071	-22.975	0.25	10.3	9.4	4.1	12.6
50	67	0.075	-22.499	0.28	10.9	10	4.2	12
50	67.5	0.078	-22.158	0.30	11.4	10.5	4.3	11.5
50	68	0.081	-21.830	0.33	11.8	10.9	4.4	11.1
50	68.5	0.083	-21.618	0.34	12.1	11.2	4.4	10.8
50	69	0.086	-21.310	0.37	12.5	11.6	4.4	10.4
50	69.5	0.088	-21.110	0.39	12.8	11.9	4.4	10.1
50	70	0.089	-21.012	0.40	13	12.2	4.4	9.8
50	70.5	0.091	-20.819	0.41	13.3	12.5	4.4	9.5
50	71	0.093	-20.630	0.43	13.6	12.8	4.4	9.2
50	71.5	0.094	-20.537	0.44	13.7	12.9	4.3	9.1
50	72	0.095	-20.446	0.45	13.8	13.1	4.2	8.9
50	72.5	0.095	-20.446	0.45	13.8	13.1	4.1	8.9
50	73	0.096	-20.355	0.46	14	13.3	4.1	8.7
50	73.5	0.096	-20.355	0.46	14	13.4	3.9	8.6
50	74	0.096	-20.355	0.46	14	13.4	3.8	8.6
50	74.5	0.096	-20.355	0.46	14	13.4	3.7	8.6
50	75	0.096	-20.355	0.46	14	13.5	3.6	8.5
50	75.5	0.096	-20.355	0.46	14	13.5	3.5	8.5
50	76	0.095	-20.446	0.45	13.8	13.3	3.3	8.7
50	76.5	0.095	-20.446	0.45	13.8	13.4	3.2	8.6
50	77	0.094	-20.537	0.44	13.7	13.3	3	8.7
50	77.5	0.093	-20.630	0.43	13.6	13.2	2.9	8.8
50	78	0.092	-20.724	0.42	13.4	13.1	2.7	8.9
50	78.5	0.09	-20.915	0.41	13.1	12.8	2.6	9.2
50	79	0.089	-21.012	0.40	13	12.7	2.4	9.3
50	79.5	0.088	-21.110	0.39	12.8	12.5	2.3	9.5
50	80	0.086	-21.310	0.37	12.5	12.3	2.1	9.7
50	80.5	0.085	-21.412	0.36	12.4	12.2	2	9.8
50	81	0.085	-21.412	0.36	12.4	12.2	1.9	9.8
50	81.5	0.084	-21.514	0.35	12.2	12	1.8	10
50	82	0.083	-21.618	0.34	12.1	11.9	1.6	10.1
50	82.5	0.082	-21.724	0.34	11.9	11.7	1.5	10.3
50	83	0.081	-21.830	0.33	11.8	11.7	1.4	10.3
50	83.5	0.08	-21.938	0.32	11.7	11.6	1.3	10.4
50	84	0.078	-22.158	0.30	11.4	11.3	1.2	10.7
50	84.5	0.077	-22.270	0.30	11.2	11.1	1	10.9

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50      85      0.076   -22.384 0.29    11.1    11      0.9     11
50      85.5    0.076   -22.384 0.29    11.1    11      0.8     11
50      86      0.076   -22.384 0.29    11.1    11      0.7     11
50      86.5    0.075   -22.499 0.28    10.9    10.8    0.6     11.2
50      87      0.075   -22.499 0.28    10.9    10.8    0.5     11.2
50      87.5    0.075   -22.499 0.28    10.9    10.8    0.4     11.2
50      88      0.075   -22.499 0.28    10.9    10.8    0.3     11.2
50      88.5    0.009   -40.915 0.00    1.3     1.2     0       20.8
50      89      0.009   -40.915 0.00    1.3     1.2     0       20.8
50      89.5    0.009   -40.915 0.00    1.3     1.2     0       20.8
---------------------------------------------------------------
```