

Exhibit 13 To FCC 349

Consulting Engineer:

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**W254BA
Facility ID Number 138879
October 2012**



Interference Contour Calculations – 98.7 from City Tower, NICOM BKG-77 at 210 degree offset

Take ERP at a given HAAT, looking at 98.7 MHz to ensure that the translator's interference contour will not overlap the protected contour of other stations. If the distance of the protected contour plus the distance of the worst-case interference contour is less than the distance between stations, there is no possible overlap using contour protection techniques..

Station and	Facility	Station		Azimuth	Dist.	Other Station's (50,50) Protected Contour toward 98.7				98.7 Interference (50,10) Contour at 51m AGL				Clearance
Call Sign	ID #	Class	Freq.	Degrees	km	W	HAAT m	dBu	km	W	HAAT m	dBu	km	km
LIC - WUDR, Dayton, OH	69423	D	98.1	240.96	8.80	13	35	60	3.6	250	42.4	100	1.1	OK
LIC - WKET, Kettering, OH	34301	D	98.3	184.13	14.42	13	80	60	5.6	250	34.7	100	1.1	OK
LIC – WPKO, Bellefontaine, OH	69626	A	98.3	30.26	69.89	1,750	141	60	25.0	250	19.4	100	1.1	OK
LIC – WRRM, Cincinnati, OH	3142	B	98.5	203.71	85.30	18,000	262	54	66.0	154	64.8	48	19.	OK
LIC – W254BJ, Springfield, OH	145937	D	98.7	59.34	27.90	12	41	60	6.3	118	36.8	40	21.	OK
LIC – WXMJ, Upper Arlington, OH	73972	A	98.9	80.05	97.31	2,600	135	60	26.7	250	43.9	54	12.	OK
LIC – WHKO, Dayton, OH	14245	B	99.1	219.49	13.22	50,000	341	54	82.4	250	58.4	94	1.5	See below
Current height & power OK!														

Notes:

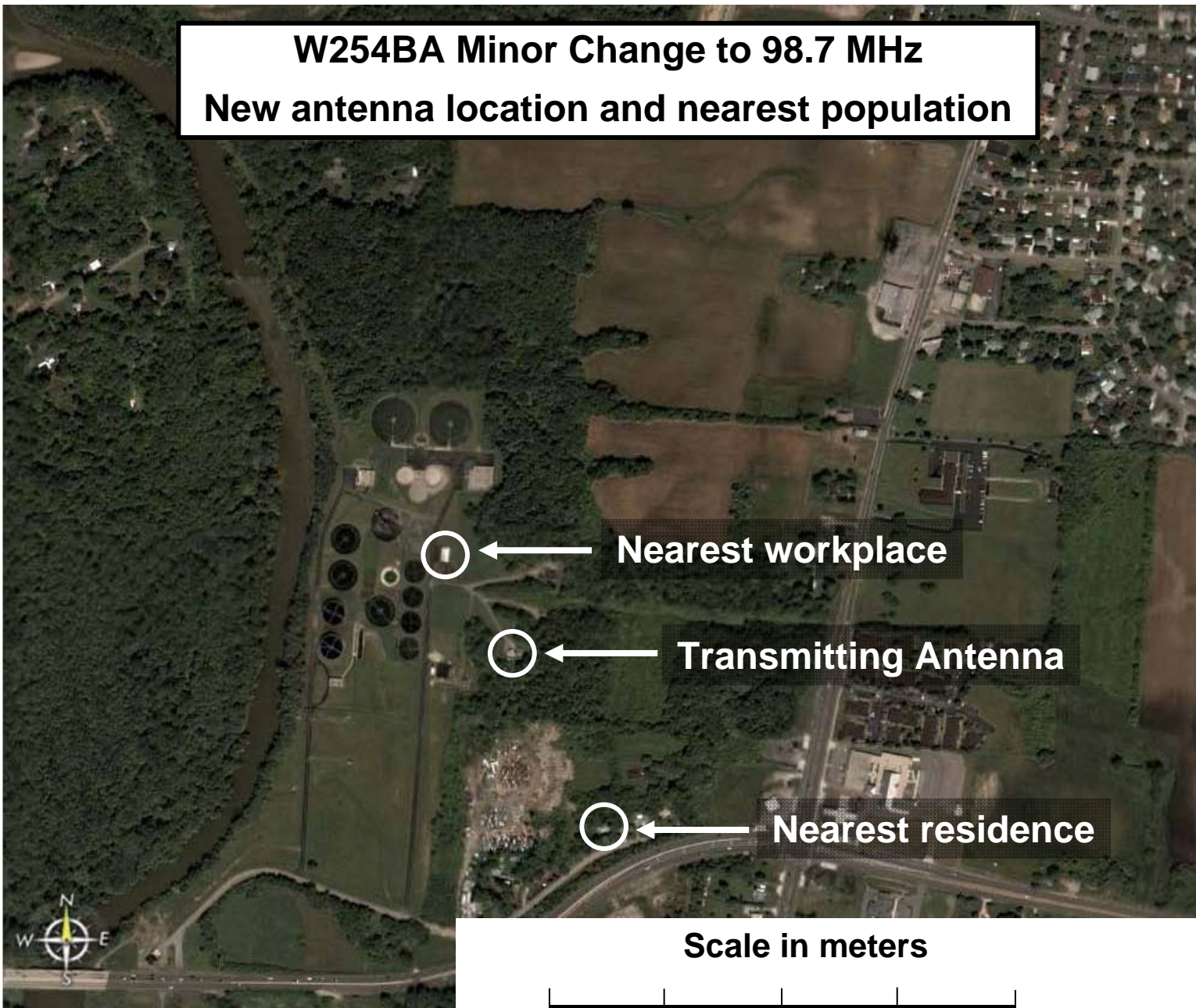
WHKO (LIC) Interference Analysis:

The proposed translator is within the 54 dbu contour of upper second adjacent station WHKO (CP) channel 268. The WHKO (LIC) contour at the translator site is 93.402 dBμ f(50,50). Using the ratio of 100:1 (translator to WHKO) on the second adjacent channel, the interference contour affecting WHKO (LIC) extends to the 133.402 dBμ (93.402 dbμ + 40 dbμ) contour. Using the free space equation, the predicted interference area extends 24 meters from the antenna.

The interference area will never reach the nearest residence, which is 259 meters from the base of the tower and is 264 meters from the radiation center (51 meters AGL). The interference area will never reach the nearest place of employment, which is 152 meters from the base of the tower and is 160 meters from the radiation center (51 meters AGL).

Therefore, the application is in compliance with the following: *74.1204 (d) the provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable.*

W254BA Minor Change to 98.7 MHz
New antenna location and nearest population



Scale in meters

0 150 300 450 600

This “Minor Change in a licensed facility” only changes the location, antenna, ERP, and HAAT of Facility # 138879 - and includes a new interference analysis per the previous pages.

The following items are provided for reference only.

NICOM BKG-77

Single-Bay: 0.47 efficiency

Reference Degrees	Relative Field	Power Gain	FCC max ERP (W)	ERP with 118W at antenna	Azimuth with 210 degree offset	Ground HAAT (m)	Rad.Ctr. HAAT (m)	60dBu (km)
0	0.983	0.97	55	54	210	16	67	7.175
10	0.983	0.97	55	54	220	7	58	6.705
20	0.983	0.97	120	54	230	-1	50	6.224
30	0.988	0.98	120	54	240	-9	42	5.694
40	0.988	0.98	120	54	250	-12	39	5.481
50	0.992	0.98	120	55	260	-11	40	5.578
60	1.000	1.00	120	55	270	-8	43	5.788
70	0.991	0.98	120	54	280	-7	44	5.830
80	0.963	0.93	250	51	290	-11	40	5.475
90	0.923	0.85	250	47	300	-22	29	4.630
100	0.873	0.76	250	42	310	-33	18	4.490
110	0.832	0.69	250	38	320	-29	22	4.383
120	0.792	0.63	250	35	330	-21	30	4.296
130	0.762	0.58	250	32	340	-11	40	4.873
140	0.732	0.54	120	30	350	-2	49	5.358
150	0.710	0.50	120	28	0	-4	47	5.152
160	0.702	0.49	120	27	10	-27	24	4.021
170	0.702	0.49	250	27	20	-34	17	4.021
180	0.702	0.49	250	27	30	-32	19	4.021
190	0.702	0.49	250	27	40	-27	24	4.021
200	0.702	0.49	170	27	50	-21	30	4.021
210	0.712	0.51	170	28	60	-14	37	4.499
220	0.732	0.54	170	30	70	-10	41	4.859
230	0.772	0.60	120	33	80	-8	43	5.111
240	0.802	0.64	120	36	90	-5	46	5.414
250	0.853	0.73	120	40	100	-5	46	5.552
260	0.909	0.83	120	46	110	-7	44	5.611
270	0.953	0.91	120	50	120	-10	41	5.518
280	0.973	0.95	120	53	130	-16	35	5.164
290	0.983	0.97	120	54	140	-13	38	5.410
300	1.000	1.00	120	55	150	-5	46	5.984
310	0.992	0.98	120	55	160	-12	39	5.505
320	0.988	0.98	250	54	170	-14	37	5.338
330	0.988	0.98	250	54	180	-21	30	4.806
340	0.983	0.97	250	54	190	-10	41	5.624
350	0.983	0.97	55	54	200	13	64	7.015

NICOM BKG-77 Field Strength vs Azimuth FCC Antenna ID# 93211

Horizontal diagram at 0.0° depres. (Total antenna)

Az (°)	Er (%)	ERP (W)	Az (°)	Er (%)	ERP (W)	Az (°)	Er (%)	ERP (W)
0.0	98.3	778.1	120.0	79.2	505.6	240.0	80.2	518.5
10.0	98.3	778.1	130.0	76.2	468.0	250.0	85.3	585.4
20.0	98.3	778.1	140.0	73.2	431.7	260.0	90.9	666.0
30.0	98.8	786.1	150.0	71.0	406.5	270.0	95.3	731.2
40.0	98.8	786.1	160.0	70.2	397.0	280.0	97.3	762.3
50.0	99.2	792.9	170.0	70.2	397.0	290.0	98.3	778.1
60.0	100.0	805.3	180.0	70.2	397.0	300.0	100.0	805.3
70.0	99.1	791.4	190.0	70.2	397.0	310.0	99.2	792.9
80.0	96.3	746.7	200.0	70.2	397.0	320.0	98.8	786.1
90.0	92.3	685.7	210.0	71.2	408.4	330.0	98.8	786.1
100.0	87.3	613.2	220.0	73.2	431.7	340.0	98.3	778.1
110.0	83.2	558.1	230.0	77.2	480.4	350.0	98.3	778.1

Wed Oct 3 13:09:49 2012 Eastern time

Call	Channel	Class	Service	Frequency	Status	City	State	FacilityID	ERP	HAAT	Dist(km)	Dist(mi)	Azimuth
WUDR	251	D	FM	98.1 MHz	LIC	DAYTON	OH	69423	0.013 kW	27.3 m	8.80 km	5.47 mi	240.96°
WKET	252	D	FM	98.3 MHz	LIC	KETTERING	OH	34301	0.013 kW	76. m	14.42 km	8.96 mi	184.13°
WPKO-FM	252	A	FM	98.3 MHz	LIC	BELLEFONTAINE	OH	69626	1.75 kW	131. m	69.89 km	43.43 mi	30.26°
WRRM	253	B	FM	98.5 MHz	LIC	CINCINNATI	OH	3142	18. kW	246. m	85.30 km	53.00 mi	203.71°
W254BJ	254	D	FX	98.7 MHz	LIC	SPRINGFIELD	OH	145937	0.012 kW	74.5 m	27.90 km	17.34 mi	59.34°
WJKR	255	A	FM	98.9 MHz	LIC	UPPER ARLINGTON	OH	73972	2.6 kW	154. m	97.31 km	60.46 mi	80.05°
WHKO	256	B	FM	99.1 MHz	LIC	DAYTON	OH	14245	50. kW	325. m	13.22 km	8.21 mi	219.49°

Antenna Height Above Average Terrain Calculations -- Input

Latitude	39 49 32.3 North	
Longitude	84 8 59.2 West	(NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **306.9** meters

Number of Evenly Spaced Radials = 12 0° is referenced to True North

Results:

Calculated HAAT= 40. meters

(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	47.4 meters
30.0°	19.0 meters
60.0°	36.8 meters
90.0°	46.3 meters
120.0°	41.0 meters
150.0°	46.2 meters
180.0°	30.5 meters
210.0°	66.9 meters
240.0°	42.4 meters
270.0°	43.0 meters
300.0°	29.0 meters
330.0°	29.9 meters

Antenna Height Above Average Terrain Calculations -- Input

Latitude	39 49 32.3 North	
Longitude	84 8 59.2 West	(NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **306.9** meters

Number of Evenly Spaced Radials = 360 0° is referenced to True North

Results:

Calculated HAAT= 39. meters

(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	47.4 meters
1.0°	45.0 meters
2.0°	42.6 meters
3.0°	39.5 meters
4.0°	35.6 meters
5.0°	31.4 meters
6.0°	28.7 meters
7.0°	27.1 meters
8.0°	26.0 meters
9.0°	25.1 meters
10.0°	23.8 meters
11.0°	22.5 meters
12.0°	21.2 meters
13.0°	20.3 meters
14.0°	19.7 meters
15.0°	19.1 meters
16.0°	18.7 meters
17.0°	18.4 meters

18.0°	18.1 meters
19.0°	17.7 meters
20.0°	17.3 meters
21.0°	17.0 meters
22.0°	16.9 meters
23.0°	16.9 meters
24.0°	17.0 meters
25.0°	17.0 meters
26.0°	17.1 meters
27.0°	17.3 meters
28.0°	17.9 meters
29.0°	18.5 meters
30.0°	19.0 meters
31.0°	19.4 meters
32.0°	19.7 meters
33.0°	20.3 meters
34.0°	21.0 meters
35.0°	21.8 meters
36.0°	22.6 meters
37.0°	23.2 meters
38.0°	23.7 meters
39.0°	24.0 meters
40.0°	24.4 meters
41.0°	24.8 meters
42.0°	25.5 meters
43.0°	26.3 meters
44.0°	27.2 meters
45.0°	28.0 meters
46.0°	28.6 meters
47.0°	29.1 meters
48.0°	29.4 meters
49.0°	29.7 meters
50.0°	30.0 meters
51.0°	30.2 meters
52.0°	30.7 meters
53.0°	31.4 meters
54.0°	32.4 meters
55.0°	33.3 meters
56.0°	34.3 meters
57.0°	35.1 meters
58.0°	35.9 meters
59.0°	36.4 meters

60.0°	36.8 meters
61.0°	37.3 meters
62.0°	37.9 meters
63.0°	38.6 meters
64.0°	39.2 meters
65.0°	39.6 meters
66.0°	40.0 meters
67.0°	40.3 meters
68.0°	40.7 meters
69.0°	41.0 meters
70.0°	41.4 meters
71.0°	41.6 meters
72.0°	41.7 meters
73.0°	41.8 meters
74.0°	41.8 meters
75.0°	42.0 meters
76.0°	42.1 meters
77.0°	42.2 meters
78.0°	42.4 meters
79.0°	42.9 meters
80.0°	43.5 meters
81.0°	43.9 meters
82.0°	44.2 meters
83.0°	44.4 meters
84.0°	44.3 meters
85.0°	44.1 meters
86.0°	44.0 meters
87.0°	44.2 meters
88.0°	44.9 meters
89.0°	45.6 meters
90.0°	46.3 meters
91.0°	46.3 meters
92.0°	46.1 meters
93.0°	45.9 meters
94.0°	45.7 meters
95.0°	45.6 meters
96.0°	45.4 meters
97.0°	45.4 meters
98.0°	45.7 meters
99.0°	46.1 meters
100.0°	46.2 meters
101.0°	46.1 meters

102.0°	45.7 meters
103.0°	45.3 meters
104.0°	44.8 meters
105.0°	44.6 meters
106.0°	44.3 meters
107.0°	44.1 meters
108.0°	44.1 meters
109.0°	44.0 meters
110.0°	43.7 meters
111.0°	43.3 meters
112.0°	42.9 meters
113.0°	42.8 meters
114.0°	42.9 meters
115.0°	42.9 meters
116.0°	42.9 meters
117.0°	42.6 meters
118.0°	42.3 meters
119.0°	41.7 meters
120.0°	41.0 meters
121.0°	40.2 meters
122.0°	39.2 meters
123.0°	38.1 meters
124.0°	37.0 meters
125.0°	36.1 meters
126.0°	35.4 meters
127.0°	34.9 meters
128.0°	34.6 meters
129.0°	34.6 meters
130.0°	34.8 meters
131.0°	34.9 meters
132.0°	35.0 meters
133.0°	34.9 meters
134.0°	35.0 meters
135.0°	35.4 meters
136.0°	36.0 meters
137.0°	36.7 meters
138.0°	37.4 meters
139.0°	37.9 meters
140.0°	38.5 meters
141.0°	39.7 meters
142.0°	41.2 meters
143.0°	42.5 meters

144.0°	43.5 meters
145.0°	44.3 meters
146.0°	45.2 meters
147.0°	45.8 meters
148.0°	46.0 meters
149.0°	46.1 meters
150.0°	46.2 meters
151.0°	46.4 meters
152.0°	46.5 meters
153.0°	46.3 meters
154.0°	45.5 meters
155.0°	44.2 meters
156.0°	42.7 meters
157.0°	41.3 meters
158.0°	40.1 meters
159.0°	39.3 meters
160.0°	38.9 meters
161.0°	38.6 meters
162.0°	38.7 meters
163.0°	38.9 meters
164.0°	38.9 meters
165.0°	38.8 meters
166.0°	38.8 meters
167.0°	38.9 meters
168.0°	38.8 meters
169.0°	38.2 meters
170.0°	37.2 meters
171.0°	36.2 meters
172.0°	35.3 meters
173.0°	34.3 meters
174.0°	33.4 meters
175.0°	32.9 meters
176.0°	32.4 meters
177.0°	31.9 meters
178.0°	31.4 meters
179.0°	31.0 meters
180.0°	30.5 meters
181.0°	31.2 meters
182.0°	31.9 meters
183.0°	32.7 meters
184.0°	33.5 meters
185.0°	34.7 meters

186.0°	35.9 meters
187.0°	37.0 meters
188.0°	37.9 meters
189.0°	39.2 meters
190.0°	40.7 meters
191.0°	42.8 meters
192.0°	45.0 meters
193.0°	48.0 meters
194.0°	51.4 meters
195.0°	55.2 meters
196.0°	58.7 meters
197.0°	61.3 meters
198.0°	62.8 meters
199.0°	63.5 meters
200.0°	63.8 meters
201.0°	63.9 meters
202.0°	63.9 meters
203.0°	64.2 meters
204.0°	64.8 meters
205.0°	65.6 meters
206.0°	66.3 meters
207.0°	66.7 meters
208.0°	66.9 meters
209.0°	66.9 meters
210.0°	66.9 meters
211.0°	66.6 meters
212.0°	65.9 meters
213.0°	64.8 meters
214.0°	63.8 meters
215.0°	62.8 meters
216.0°	61.8 meters
217.0°	60.6 meters
218.0°	59.5 meters
219.0°	58.4 meters
220.0°	57.7 meters
221.0°	57.1 meters
222.0°	56.6 meters
223.0°	55.9 meters
224.0°	55.2 meters
225.0°	54.4 meters
226.0°	53.6 meters
227.0°	52.8 meters

228.0°	52.0 meters
229.0°	51.2 meters
230.0°	50.4 meters
231.0°	49.4 meters
232.0°	48.3 meters
233.0°	47.2 meters
234.0°	46.2 meters
235.0°	45.4 meters
236.0°	44.7 meters
237.0°	43.9 meters
238.0°	43.1 meters
239.0°	42.6 meters
240.0°	42.4 meters
241.0°	42.3 meters
242.0°	42.3 meters
243.0°	42.3 meters
244.0°	42.0 meters
245.0°	41.7 meters
246.0°	41.3 meters
247.0°	40.8 meters
248.0°	40.2 meters
249.0°	39.7 meters
250.0°	39.4 meters
251.0°	39.4 meters
252.0°	39.3 meters
253.0°	39.1 meters
254.0°	39.1 meters
255.0°	39.1 meters
256.0°	39.3 meters
257.0°	39.5 meters
258.0°	39.7 meters
259.0°	39.8 meters
260.0°	39.8 meters
261.0°	39.8 meters
262.0°	39.6 meters
263.0°	39.5 meters
264.0°	39.5 meters
265.0°	40.0 meters
266.0°	40.7 meters
267.0°	41.3 meters
268.0°	41.9 meters
269.0°	42.6 meters

270.0°	43.0 meters
271.0°	43.3 meters
272.0°	43.5 meters
273.0°	43.7 meters
274.0°	43.9 meters
275.0°	44.0 meters
276.0°	44.1 meters
277.0°	44.2 meters
278.0°	44.1 meters
279.0°	44.0 meters
280.0°	43.9 meters
281.0°	43.9 meters
282.0°	43.7 meters
283.0°	43.2 meters
284.0°	42.7 meters
285.0°	42.3 meters
286.0°	42.0 meters
287.0°	41.4 meters
288.0°	40.8 meters
289.0°	40.5 meters
290.0°	40.2 meters
291.0°	39.8 meters
292.0°	39.3 meters
293.0°	38.5 meters
294.0°	37.2 meters
295.0°	35.9 meters
296.0°	34.7 meters
297.0°	33.4 meters
298.0°	32.1 meters
299.0°	30.6 meters
300.0°	29.0 meters
301.0°	27.2 meters
302.0°	25.5 meters
303.0°	23.7 meters
304.0°	22.1 meters
305.0°	20.8 meters
306.0°	19.9 meters
307.0°	19.3 meters
308.0°	18.8 meters
309.0°	18.3 meters
310.0°	17.8 meters
311.0°	17.4 meters

312.0°	17.1 meters
313.0°	17.2 meters
314.0°	17.5 meters
315.0°	18.0 meters
316.0°	18.5 meters
317.0°	19.0 meters
318.0°	19.7 meters
319.0°	20.7 meters
320.0°	21.9 meters
321.0°	23.3 meters
322.0°	24.7 meters
323.0°	25.9 meters
324.0°	27.0 meters
325.0°	27.8 meters
326.0°	28.3 meters
327.0°	28.6 meters
328.0°	29.0 meters
329.0°	29.4 meters
330.0°	29.9 meters
331.0°	30.4 meters
332.0°	31.0 meters
333.0°	31.6 meters
334.0°	32.5 meters
335.0°	33.5 meters
336.0°	34.7 meters
337.0°	36.0 meters
338.0°	37.4 meters
339.0°	38.7 meters
340.0°	40.0 meters
341.0°	41.2 meters
342.0°	42.2 meters
343.0°	43.1 meters
344.0°	43.8 meters
345.0°	44.5 meters
346.0°	45.1 meters
347.0°	45.7 meters
348.0°	46.4 meters
349.0°	47.4 meters
350.0°	49.1 meters
351.0°	50.8 meters
352.0°	52.3 meters
353.0°	53.7 meters

354.0°	55.3 meters
355.0°	55.7 meters
356.0°	55.2 meters
357.0°	53.7 meters
358.0°	51.6 meters
359.0°	49.5 meters